

# PATENT ABSTRACTS OF JAPAN

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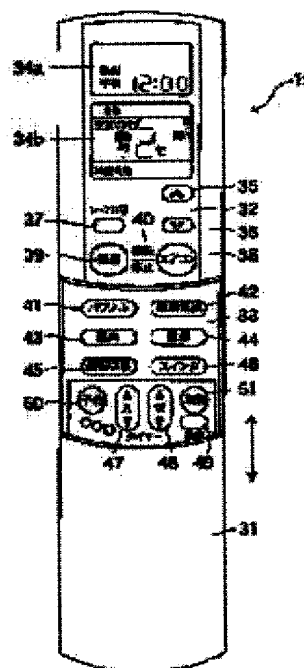
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## (54) AIR CONDITIONER

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To simply and accurately achieve the maximum dust collection capability of a electric duct collector with the operation of one button of a remote control device by increasing the speed of a blower and the operating voltage of the electric dust collector for nearly maximizing the capability of the electric dust collector, when an operation button for powerful cleaning operation is operated.

**SOLUTION:** A second operation surface 33 being opened and closed by a cover 31 is provided at the lower part of a first operation surface 32. A setting operation button for setting various operation states such as a powerful button (an operation button for powerful cleaning operation) 41 other than an operation button 38 for conditioning air and an operation button 39 for cleaning air is provided on the second operation surface 33. The powerful button 41 is used to nearly maximize the capability of an electric dust collector. Then, when the powerful button 41 is operated while the body of an air-conditioner is being operated, a control signal that increases the speed of an indoor fan and the operating voltage of the electric dust collector for nearly maximizing the capability of the electric dust collector is outputted from a control circuit.



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CLAIMS

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[Claim(s)]

[Claim 1] In the air conditioner equipped with the remote control equipment which carries the electrostatic precipitator which collects indoor dust while forming a heat exchanger and a blower in an interior unit, and controls said blower and said electrostatic precipitator by remote operation The operating button for powerful clarification operation for increasing the capacity of said electrostatic precipitator to abbreviation maximum capacity is prepared in said remote control equipment. The air conditioner characterized by establishing the control means which increases the rotational frequency of said blower, and the operating voltage of said electrostatic precipitator, respectively, and increases said electrostatic precipitator to abbreviation maximum capacity when said operating button for powerful clarification operation is operated during body operation of said air conditioner.

[Claim 2] The vertical louver by which said interior unit changes the blow-off include angle of the blow-off style from the exit cone of heat exchange air in the vertical direction, Actuation of a vertical louver sense modification means to change the sense of the bottom louver of besides, and this vertical louver sense modification means is controlled. The air conditioner according to claim 1 characterized by providing the control means of the blow-off style which turned said vertical louver in the substantial verticality direction, which it blew off and was turned to an include angle or slanting down one, and which it blows off and is changed into an include angle when said operating button for powerful clarification operation is operated.

[Claim 3] The 1st control mode at the time of usual operation which turned said vertical louver to the abbreviation horizontal direction at the time of control of said electrostatic precipitator [ in / in said control means of the blow-off style / usual operation of the body of said air conditioner ] and which it blows off and is rotated at an include angle, The blow-off include angle which turned said vertical louver in the substantial verticality direction when said powerful clarification operation operating button was operated. Or the air conditioner according to claim 2 characterized by having the change means which switches the 2nd control mode at the time of powerful clarification operation towards slanting down one which it blows off and is changed into an include angle.

[Claim 4] Said control means of the blow-off style is an air conditioner according to claim 2 characterized by having the function made to swing said vertical louver continuously when said operating button for powerful clarification operation is operated.

[Claim 5] Said interior unit is the air conditioner according to claim 2 characterized by to provide the right-and-left louver which blows off to said exit cone and changes the blow-off include angle of a wind into a longitudinal direction, a right-and-left louver sense modification means change the sense of this right-and-left louver, and the longitudinal-direction control means of the blow-off style made to swing said right-and-left louver continuously when actuation of this right-and-left louver sense modification means is controlled and said operating button for powerful clarification operation is operated.

[Claim 6] In the air conditioner equipped with the remote control equipment which carries the electrostatic precipitator which collects indoor dust while forming a heat exchanger and a blower in an interior unit, and controls said blower and said electrostatic precipitator by remote

operation While preparing the operating button for dust for driving said electrostatic precipitator to said remote control equipment, and collecting indoor dust The vertical louver which changes the blow-off include angle of the blow-off style from the exit cone of heat exchange air into said interior unit in the vertical direction, Actuation of a vertical louver sense modification means to change the sense of the bottom louver of besides, and this vertical louver sense modification means is controlled. The air conditioner characterized by establishing the control means of the blow-off style made to swing said vertical louver continuously when said operating button for dust is operated during operation of the body of said air conditioner.

[Claim 7] Said control means of the blow-off style is an air conditioner according to claim 6 characterized by having the scheduled time continuation swing function which only predetermined time makes swing said vertical louver continuously when said operating button for dust is operated.

[Claim 8] Said control means of the blow-off style is an air conditioner according to claim 6 characterized by having the intermittent swing function made to swing said vertical louver for every predetermined time when said operating button for dust is operated.

[Claim 9] It is the air conditioner according to claim 6 characterized by having the swing control function which will stop swing of said vertical louver if said interior unit is equipped with the sensor which detects air dirt, said control means of the blow-off style makes said vertical louver swing continuously when said operating button for dust is operated, and the output value of said sensor turns into below the predetermined set point set up beforehand.

[Claim 10] Said control means of the blow-off style is an air conditioner according to claim 9 characterized by having the blower control function to which the rotational frequency of said blower will be reduced if the output value of said sensor turns into said below set point.

[Claim 11] It is the air conditioner according to claim 6 characterized by to have the control function which only the predetermined setup time set up beforehand makes said vertical louver swing continuously when said operating button for dust is operated, said control means of the blow-off style suspends [ said interior unit is equipped with the sensor which detects air dirt, ] swing of said vertical louver after progress of said setup time, and controls the rotational frequency of said blower based on the output value of said sensor.

[Claim 12] It is the air conditioner according to claim 6 characterized by to have the control function which only the predetermined setup time set up beforehand makes said vertical louver swing continuously when said operating button for dust is operated, said control means of the blow-off style suspends [ said interior unit is equipped with the sensor which detects air dirt, ] swing of said vertical louver after progress of said setup time, and controls the operating voltage of said electrostatic precipitator based on the output value of said sensor.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[Field of the Invention] The electrostatic precipitator which collects indoor dust is carried in an interior unit, and this invention relates to the air conditioner in which air clarification operation is possible.

[0002]

[Description of the Prior Art] Generally, an electrostatic precipitator is built in an interior unit and the air conditioner equipped with the air clarification function is developed. With the remote control equipment for this kind of air conditioners, the operating button for "operation/halt" "\*\*\*\*" which operates the operating button of \*\*, ON of air clarification (\*\*\*\*) operation, and OFF which operates ON of air-conditioning (air-conditioning) operations, such as heating of an air conditioner, air conditioning, or dehumidification operation, and OFF, and two or more operating buttons for [ various ] other setup are prepared. As an operating button for [ various ] a setup of remote control equipment here For example, the operating button for airflow modification which changes an indoor fan's rotational frequency and changes the blow-off airflow of the blow-off style from the exit cone of the heat exchange air in an interior unit, the wind direction which changes the include angle of the louver with which the exit cone of an interior unit was equipped, and changes the blow-off include angle of the blow-off style from an exit cone -- the operating button for modification, the operating button for operating voltage modification of an electrostatic precipitator, etc. are prepared.

[0003] and the operating button for [ if it is in the thing of a configuration conventionally, when demonstrating powerful dust collection capacity at the time of \*\*\*\* operation by the electrostatic precipitator ] airflow modification of remote control equipment and wind direction -- it has the composition that a user adjusts the operating button for modification, the operating button for operating voltage modification of an electrostatic precipitator, etc. according to an individual manually.

[0004]

[Problem(s) to be Solved by the Invention] Since it is necessary to set up the louver include angle which operated two or more operating buttons for [ various ] a setup of remote control equipment according to the individual whenever it turned on the air conditioner, if it was in the thing of a configuration conventionally [ above-mentioned ], and suited liking of a user, there is a problem from which actuation of remote control equipment will become complicated.

[0005] Furthermore, since troublesome actuation of operating two or more operating buttons of remote control equipment according to an individual is needed also when demonstrating powerful dust collection capacity at the time of \*\*\*\* operation by the electrostatic precipitator, it is difficult to perform correctness and quickly conditions, such as operating voltage of the include angle, the airflow, and the electrostatic precipitator of the louver for making an electrostatic precipitator attain the maximum dust collection engine performance.

[0006] This invention was made paying attention to the above-mentioned situation, and the purpose is in offering the air conditioner which can attain the maximum dust collection capacity by the electrostatic precipitator simply and correctly by one button grabbing of remote control

equipment.

[0007]

[Means for Solving the Problem] In the air conditioner equipped with the remote control equipment which invention of claim 1 carries the electrostatic precipitator which collects indoor dust while forming a heat exchanger and a blower in an interior unit, and controls said blower and said electrostatic precipitator by remote operation. The operating button for powerful clarification operation for increasing the capacity of said electrostatic precipitator to abbreviation maximum capacity is prepared in said remote control equipment. When said operating button for powerful clarification operation is operated during body operation of said air conditioner, it is the air conditioner characterized by establishing the control means which increases the rotational frequency of said blower, and the operating voltage of said electrostatic precipitator, respectively, and increases said electrostatic precipitator to abbreviation maximum capacity.

[0008] And since the rotational frequency of a blower and the operating voltage of an electrostatic precipitator are increased, respectively and it was made to increase an electrostatic precipitator to abbreviation maximum capacity by the control means when the operating button for powerful clarification operation of remote control equipment was operated during body operation of an air conditioner in invention of this claim 1, the maximum dust collection capacity by the electrostatic precipitator can be attained simply and correctly by one button grabbing of remote control equipment.

[0009] The vertical louver by which, as for said interior unit, invention of claim 2 changes the blow-off include angle of the blow-off style from the exit cone of heat exchange air in the vertical direction, Actuation of a vertical louver sense modification means to change the sense of the bottom louver of besides, and this vertical louver sense modification means is controlled. When said operating button for powerful clarification operation is operated, it is the air conditioner according to claim 1 characterized by providing the control means of the blow-off style which turned said vertical louver in the substantial verticality direction, which it blew off and was turned to an include angle or slanting down one, and which it blows off and is changed into an include angle.

[0010] And in invention of this claim 2, when the operating button for powerful clarification operation is operated, there is effectiveness which can perform dust picking operation by which the vertical louver was turned in the substantial verticality direction by the control means of the blow-off style, by which it blew off and turned to an include angle or slanting down ones, and which could be made to be able to soar at the dust of a floor, could take dust effectively, and was excellent since it blows off and was made to change into an include angle.

[0011] The 1st control mode at the time of usual operation whose invention of claim 3 turned said vertical louver to the abbreviation horizontal direction at the time of control of said electrostatic precipitator [ in / in said control means of the blow-off style / usual operation of the body of said air conditioner ] and which it blows off and is rotated at an include angle, The blow-off include angle which turned said vertical louver in the substantial verticality direction when said powerful clarification operation operating button was operated, Or it is the air conditioner according to claim 2 characterized by having the change means which switches the 2nd control mode at the time of powerful clarification operation towards slanting down one which it blows off and is changed into an include angle.

[0012] And in invention of this claim 3, the blow-off include angle which blew off and usually turned the vertical louver to the abbreviation horizontal direction by a change and the 1st control mode with the change means of a wind control means at the time of control of an electrostatic precipitator [ in / for the 1st control mode at the time of operation and the 2nd control mode at the time of powerful clarification operation / usual operation of the body of an air conditioner ] is rotated. Here, when a powerful clarification operation operating button is operated, the effectiveness made in dust picking operation by which the change and the vertical louver were turned in the substantial-verticality direction with the change means at the 2nd control mode at the time of powerful clarification operation, by which it blew off and it turned to an include angle or slanting down one, and which could be made to be able to soar at the dust of a floor at the time of powerful clarification operation, could take dust effectively, and was

excellent since it blows off and it was made change into an include angle is.

[0013] Invention of claim 4 is an air conditioner according to claim 2 characterized by equipping said control means of the blow-off style with the function made to swing said vertical louver continuously when said operating button for powerful clarification operation is operated.

[0014] And since it was made to make a vertical louver swing continuously when the operating button for powerful clarification operation was operated in invention of this claim 4, it can be made to be able to soar at the dust of a floor at the time of powerful clarification operation, dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation.

[0015] The right-and-left louver by which said interior unit blows off to said exit cone, and invention of claim 5 changes the blow-off include angle of a wind into a longitudinal direction, Actuation of a right-and-left louver sense modification means to change the sense of this right-and-left louver, and this right-and-left louver sense modification means is controlled. When said operating button for powerful clarification operation is operated, it is the air conditioner according to claim 2 characterized by providing the longitudinal-direction control means of the blow-off style made to swing said right-and-left louver continuously.

[0016] And since it was made to make a right-and-left louver swing continuously by the longitudinal-direction control means of the blow-off style when the operating button for powerful clarification operation was operated in invention of this claim 5, it can be made to be able to soar at the dust of a floor at the time of powerful clarification operation, dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation.

[0017] In the air conditioner equipped with the remote control equipment which invention of claim 6 carries the electrostatic precipitator which collects indoor dust while forming a heat exchanger and a blower in an interior unit, and controls said blower and said electrostatic precipitator by remote operation While preparing the operating button for dust for driving said electrostatic precipitator to said remote control equipment, and collecting indoor dust The vertical louver which changes the blow-off include angle of the blow-off style from the exit cone of heat exchange air into said interior unit in the vertical direction, Actuation of a vertical louver sense modification means to change the sense of the bottom louver of besides, and this vertical louver sense modification means is controlled. When said operating button for dust is operated during operation of the body of said air conditioner, it is the air conditioner characterized by establishing the control means of the blow-off style made to swing said vertical louver continuously.

[0018] And since it was made to make a vertical louver swing continuously by the control means of the blow-off style when the operating button for dust was operated during operation of the body of an air conditioner in invention of this claim 6, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation.

[0019] Invention of claim 7 is an air conditioner according to claim 6 characterized by equipping said control means of the blow-off style with the scheduled time continuation swing function which only predetermined time makes swing said vertical louver continuously when said operating button for dust is operated.

[0020] And since it was made only for predetermined time to make a vertical louver swing continuously by the scheduled time continuation swing function of the control means of the blow-off style when the operating button for dust was operated in invention of this claim 7, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation.

[0021] Invention of claim 8 is an air conditioner according to claim 6 characterized by equipping said control means of the blow-off style with the intermittent swing function made to swing said vertical louver for every predetermined time when said operating button for dust is operated.

[0022] And since it was made to make a vertical louver swing for every predetermined time by the intermittent swing function of the control means of the blow-off style when the operating button for dust was operated in invention of this claim 8, it can be made to be able to soar at

the dust of a floor at the time of dust picking operation, dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation.

[0023] It is the air conditioner according to claim 6 characterized by having the swing control function which said control means of the blow-off style makes suspend swing of said vertical louver when said operating button for dust is operated, said vertical louver is made to swing continuously and the output value of said sensor turns into below the predetermined set point set up beforehand by equipping invention of claim 9 with the sensor by which said interior unit detects air dirt.

[0024] And when the operating button for dust is operated in invention of this claim 9, a vertical louver is made to swing continuously by the swing control function of the control means of the blow-off style. Since it was made to stop swing of a vertical louver when the output value of the sensor which detects air dirt turned into below the predetermined set point set up beforehand, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation.

[0025] Invention of claim 10 is an air conditioner according to claim 9 characterized by having the blower control function to which said control means of the blow-off style will reduce the rotational frequency of said blower if the output value of said sensor turns into said below set point.

[0026] And since it will blow off if the output value of the sensor which detects air dirt in invention of this claim 10 turns into below the predetermined set point set up beforehand, and it was made to reduce the rotational frequency of a blower by the blower control function of a wind control means, in the 2nd operation mode after dust picking operation, it blows off, automatic control of the airflow of a wind is carried out, and comfortable operation can be performed.

[0027] Invention of claim 11 is equipped with the sensor by which said interior unit detects air dirt. Said control means of the blow-off style makes only the predetermined setup time beforehand set up in said vertical louver swing continuously, when said operating button for dust is operated. It is the air conditioner according to claim 6 characterized by having the control function which suspends swing of said vertical louver after progress of said setup time, and controls the rotational frequency of said blower based on the output value of said sensor.

[0028] And when the operating button for dust is operated in invention of this claim 11 Only the predetermined setup time set up beforehand makes a vertical louver swing continuously. Since swing of a vertical louver is suspended after progress of the setup time, it blows off based on the output value of the sensor which detects air dirt and the rotational frequency of a blower was controlled by the control function of the blower rotational frequency of a wind control means It can be made to be able to soar at the dust of a floor at the time of dust picking operation, dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation. Furthermore, in the 2nd operation mode after dust picking operation, it blows off, automatic control of the airflow of a wind is carried out, and comfortable operation can be performed.

[0029] Invention of claim 12 is equipped with the sensor by which said interior unit detects air dirt. Said control means of the blow-off style makes only the predetermined setup time beforehand set up in said vertical louver swing continuously, when said operating button for dust is operated. It is the air conditioner according to claim 6 characterized by having the control function which suspends swing of said vertical louver after progress of said setup time, and controls the operating voltage of said electrostatic precipitator based on the output value of said sensor.

[0030] And when the operating button for dust is operated in invention of this claim 12 Only the predetermined setup time set up beforehand makes a vertical louver swing continuously by the control function of the control means of the blow-off style. Since the operating voltage of an electrostatic precipitator was controlled based on the output value of the sensor which suspends swing of a vertical louver after progress of the setup time, and detects air dirt It can be made to be able to soar at the dust of a floor at the time of dust picking operation, dust can



be taken effectively, and there is effectiveness which can perform outstanding dust picking operation. Furthermore, in the 2nd operation mode after dust picking operation, it blows off, automatic control of the airflow of a wind is carried out, and comfortable operation can be performed.

[0031]

[Embodiment of the Invention] Hereafter, the gestalt of operation of the 1st of this invention is explained with reference to drawing 1 thru/or drawing 6. Drawing 3 shows the refrigerating cycle of the heat pump type of the air conditioner of the gestalt of this operation. For a compressor and 2, as for an interior-of-a-room side heat exchanger and 4, in drawing 3, a four-way switching valve and 3 are [ one / an expansion valve and 5 ] outdoor side heat exchangers.

[0032] Here, inverter equipment 6 is connected to the compressor 1. Furthermore, the compressor 1 is incorporated in the outdoor unit (exterior unit) which is not illustrated with a four-way switching valve 2, an expansion valve 4, and the outdoor side heat exchanger 5. This outdoor unit is equipped with the outdoor fan 7 stationed in the near location of the outdoor side heat exchanger 5.

[0033] Moreover, the interior-of-a-room side heat exchanger 3 is incorporated in the indoor unit (interior unit) 8 shown in drawing 1 and drawing 2. This indoor unit 8 is equipped with the indoor fan (blower) 9 who is a cross flow fan further. And this indoor unit 8 is connected with the outdoor unit which is not illustrated, and the function of air-conditioning operations, such as heating, air conditioning, and dry cleaning (dehumidification), is demonstrated.

[0034] Furthermore, as shown in drawing 2, the air cleaner 10 is built in the indoor unit 8 of the gestalt of this operation. This air cleaner 10 consists of an electrostatic precipitator 11 and an odor removal filter 12 juxtaposed in the side of this electrostatic precipitator 11. Here, an electrostatic precipitator 11 and an odor removal filter 12 are independently arranged in the front upper part of the interior-of-a-room side heat exchanger 3, respectively, and are arranged in it.

[0035] Moreover, the electrostatic precipitator 11 is connected to the high-voltage generating circuit 13. And by the drive of an air cleaner 10, the detailed suspended particle in air is charged with the electrode of an electrostatic precipitator 11, and dust is collected for the indoor unit 8 of the gestalt of this operation while being deodorized by the odor removal filter 12. This also demonstrates the function of air clarification.

[0036] In addition, in these specifications, air-conditioning operation means operations (air conditioning, heating, dry cleaning, etc.) of air conditioners other than operation of an electrostatic precipitator 11, and it is used with air-conditioner operation in semantics including air-conditioning operation or the individual operation of an electrostatic precipitator 11, air-conditioning operations, and all the concomitant use operations of an electrostatic precipitator 11.

[0037] Moreover, the infrared light sensing portion 20 mentioned later, the vertical louver 21 which changes the blow-off include angle of the blow-off style from the exit cone of heat exchange air in the vertical direction, and the right-and-left louver which changes the blow-off include angle of the blow-off style into a longitudinal direction and which is not illustrated are prepared in the indoor unit 8 of the gestalt of this operation, respectively. Here, two or more side-by-side installation of the louver construct of the shape of a wing installed in the vertical direction by the right-and-left louver is carried out at the longitudinal direction. In addition, these louver constructs are supported rotatable in the direction of the circumference of a shaft of a revolving shaft, respectively, and the right-and-left louver has the composition of changing the blow-off include angle of the blow-off style into a longitudinal direction with rotation actuation of these louver constructs.

[0038] Furthermore, the plate-like louver constructs 21a and 21b of two sheets arranged by the lower part of an indoor unit 8 as shown in drawing 2 are formed in the vertical louver 21. These louver constructs 21a and 21b are installed in the condition of having been installed in the longitudinal direction (abbreviation horizontal direction) of an indoor unit 8. And these louver constructs 21a and 21b are supported rotatable centering on the rotation shafts 23a and 23b, respectively, and have the composition of changing the blow-off include angle of the blow-off

style in the vertical direction with rotation actuation of these louver constructs 21a and 21b. In addition, the louver constructs 21a and 21b of two sheets — independent — rotation — it is operational.

[0039] Moreover, a reference mark 14 is the control circuit (control means) of the air conditioner of the gestalt of this operation in drawing 3. Inverter equipment 6, the high-voltage generating circuit 13, the outdoor fan control circuit 15 for the outdoor fan's 7 fan motor control, the outside-air-temperature sensor 16, the indoor fan control circuit 17 for the indoor fan's 9 fan motor control, the room temperature sensor 18, the infrared light sensing portion 20, the 1st louver motor 24 for the drive of the vertical louver 21, the 2nd louver motor 25 for the drive of a right-and-left louver, timer equipment 26, and the gas sensor 27 for air dirt detection are connected to this control circuit 14, respectively. In addition, three timers 26a, 26b, and 26c are built in timer equipment 26, and the set has become possible according to the individual, respectively.

[0040] Furthermore, the remote controller (remote control equipment) 19 of a wireless type is attached to the air conditioner of the gestalt of this operation. And it is transmitted by infrared light and the indication signal from this remote controller 19 is received by the infrared light sensing portion 20 of an indoor unit 8. Furthermore, the output signal from this infrared light sensing portion 20 is inputted into a control circuit 14.

[0041] Moreover, drawing 4 shows the remote controller 19 of the gestalt of this operation. The covering 31 which can be slid in the vertical direction is formed in the bottom half section of abbreviation on top at the body of this remote controller 19. Furthermore, the 2nd actuation side 33 opened and closed by the abbreviation Johan section with covering 31 down the 1st actuation side 32 held by the exposure besides covering 31 and this 1st actuation side 32 is established in the top face of a body of a remote controller 19, respectively.

[0042] Moreover, the two liquid crystal display sections 34a and 34b, two temperature setting buttons 35 and 36, operation-time selector buttons 37, the air-conditioning operation operating button 38 that directs operation/halt of air-conditioning operations, such as air conditioning and heating, and the \*\*\*\* operation operating button (operating button for dust) 39 which directs operation/halt of an electrostatic precipitator 11 are formed in the 1st actuation side 32, respectively. Here, the air-conditioning operation operating button 38 and the \*\*\*\* operation operating button 39 are put in order and arranged. In addition, it is possible to carry out mutually-independent [ of air-conditioning operation by these air-conditioning operation operating buttons 38 and the air clarification operation by the \*\*\*\* operation operating button 39 ], and to carry out ON/OFF, without being influenced by the operational status of another side. Furthermore, only by pushing the carbon button of the air-conditioning operation operating button 38, when both air-conditioning operation and \*\*\*\* operation are ON, it is set up so that both air-conditioning operation and \*\*\*\* operation may turn off.

[0043] Moreover, air-conditioning and both the operation operating button 38 of \*\*\*\*, and the viewing area 40 that performs the display relevant to operation/halt among 39 are arranged in the 1st actuation side 32 of a remote controller 19. The alphabetic character of "operation/halt" which means ON/OFF of operation is printed in the black by this viewing area 40.

[0044] Moreover, the various service conditions corresponding to actuation of each operating button on the 1st actuation side 32 and the 2nd actuation side 33 are suitably expressed in the two liquid crystal display sections 34a and 34b as an alphabetic character, an illustration, a mark, etc. alternatively.

[0045] moreover, the setting operating button 41 for setting air-conditioning and both the operation operating button 38 of \*\*\*\*, and various operational status other than 39 to the 2nd actuation side 33, for example, powerful \*\*, (operating button for powerful clarification operation), health \*\*\*\*\*, 42, and wind direction — a transfer button 43, the airflow transfer button 44, the operation transfer button 45, swing \*\* 46, timer \*\*\*\*\* 47, timer \*\*\*\* 48, the timer setting button 49, and \*\*\*\*\* 50 — it cancels and \*\* 51 etc. is formed.

[0046] Here, powerful \*\* 41 is an operating button for increasing the capacity of an electrostatic precipitator 11 to abbreviation maximum capacity. And when powerful \*\* 41 is operated during body operation of an air conditioner, the control signal which increases the indoor fan's 9

rotational frequency and the operating voltage of an electrostatic precipitator 11 from a control circuit 14, respectively, and increases an electrostatic precipitator 11 to abbreviation maximum capacity is outputted.

[0047] moreover, wind direction -- as for a transfer button 43, the thing and the operation transfer button 45 with which the direction of a blow-off louver (blow-off direction wind) and the airflow transfer button 44 set up blow-off airflow, respectively set up each operation mode, such as air conditioning, heating, automatic, dry cleaning, and ventilation. Furthermore, swing \*\* 46 is for switching ON of swing actuation of a blow-off louver, and OFF. Moreover, the thing for setting up a thing for timer \*\*\*\*\* 47 setting up the start-up time of day by the timer and the shutdown time of day according [ timer \*\*\*\* 48 ] to a timer and the timer setting button 49 are for setting up the operation time by the timer.

[0048] In addition, in the body of a remote controller 19, the receipt room of the cell which is not illustrated as a power source of operation is formed. And the cell is contained by this receipt interior of a room removable.

[0049] Next, an operation of the gestalt of this implementation of the above-mentioned configuration is explained. At the air conditioner of the gestalt of this operation, actuation of the air conditioner at the time of use of an electrostatic precipitator 11 is controlled by actuation of a remote controller 19 as follows according to the flow chart of drawing 5 . First, the existence of train operation dispatching of an electrostatic precipitator 11 is judged (step S1). Here, when judged as those of an electrostatic precipitator 11 with train operation dispatching, it progresses to the following step S2. In this step S2, the indoor fan 9 usually drives at a rotational frequency. Furthermore, as shown in drawing 6 , the louver constructs 21a and 21b of two sheets of the vertical louver 21 rotate an electrostatic precipitator 11 at the blow-off include angle which turned the blow-off direction of the blow-off style from the exit cone of heat exchange air to the abbreviation horizontal direction, while it is held with the usual operating voltage. In addition, when judged as nothing [ train-operation-dispatching ] of an electrostatic precipitator 11 at step S1, it stands by by current operational status.

[0050] Furthermore, at the following step S3, it is judged for powerful \*\* 41 of a remote controller 19 whether it is an ON state. Here, when powerful \*\* 41 is judged to be an ON state, it progresses to the following step S4. In this step S4, the timer 1 beforehand set as the predetermined setup time starts. Then, at the following step S5, the indoor fan 9 drives by the condition which usually increased rather than the rotational frequency, or maximum engine speed. Furthermore, at step S6, an electrostatic precipitator 11 rotates at the blow-off include angle turned in the direction of slanting facing down as step S7 showed the sense of the louver constructs 21a and 21b of two sheets of the vertical louver 21 to a perpendicular direction (the substantial verticality direction) or drawing 2 while increasing rather than the usual operating voltage.

[0051] Moreover, at the following step S8, the existence of modification actuation of the sense of the vertical louver 21 is judged. Here, when modification actuation of the sense of the vertical louver 21 is judged to be owner \*\*, it progresses to the following step S9. At this step S9, after an include-angle change of the louver constructs 21a and 21b of two sheets of the vertical louver 21 is made within the limits of between a perpendicular direction and the direction of slanting facing down, it is judged for a timer 1 at the following step S10 whether it is deadline. In addition, when modification actuation of the sense of the vertical louver 21 is judged to be nothing at step S8, it progresses to step S10.

[0052] Moreover, when judged as the condition that the timer 1 has not passed the deadline of at step S10, it progresses to the following step S11, and when judged as the condition that the timer 1 passed the deadline of, it is returned to step S2.

[0053] Moreover, at step S3, when powerful \*\* 41 of a remote controller 19 is judged to be an OFF state, it progresses to the following step S12. At this step S12, it is judged for the \*\*\*\* operation operating button 39 of a remote controller 19 whether it is an ON state. Here, when the \*\*\*\* operation operating button 39 is judged to be an OFF state, it progresses to step S11, and when the \*\*\*\* operation operating button 39 is judged to be an ON state, it progresses to the following step S13.

[0054] At this step S13, the 1st louver motor 24 for the drive of the vertical louver 21 drives, and swing of the vertical louver 21 is started. Then, the output value of a gas sensor 27 is read at the following step S14.

[0055] Furthermore, at the following step S15, it is judged whether it is below the predetermined set point to which the output value of a gas sensor 27 was set beforehand. Here, when the output value of a gas sensor 27 is judged to be higher than the predetermined set point set up beforehand, it is returned to step S13, and when the output value of a gas sensor 27 is judged to be below the predetermined set point set up beforehand, it progresses to the following step S16. At this step S16, swing of the vertical louver 21 is suspended and it progresses to step S11 after that.

[0056] Moreover, at step S11, the existence of a shutdown command of an electrostatic precipitator 11 is judged. Here, when it is judged that he has no shutdown command of an electrostatic precipitator 11, it is returned to step S2, and when judged as those of an electrostatic precipitator 11 with a shutdown command, operation of an electrostatic precipitator 11 is suspended.

[0057] Then, the following effectiveness is done so if it is in the thing of the above-mentioned configuration. That is, since the indoor fan's 9 rotational frequency and the operating voltage of an electrostatic precipitator 11 are increased, respectively and it was made to increase an electrostatic precipitator 11 to abbreviation maximum capacity with the control signal outputted from a control circuit 14 when powerful \*\* 41 was formed in a remote controller 19 in the air conditioner of the gestalt of this operation and powerful \*\* 41 of a remote controller 19 was operated during body operation of an air conditioner, the maximum exertion of the electrostatic precipitation function by the electrostatic precipitator 11 can be carried out. Therefore, the maximum dust collection capacity by the electrostatic precipitator 11 can be attained simply and correctly only by one button grabbing which depresses powerful \*\* 41 of a remote controller 19.

[0058] Moreover, since the control means of the blow-off style which turned the vertical louver 21 in the substantial verticality direction, which was turned to slanting down one as it blew off and was shown in an include angle or drawing 2 and which it blows off and is changed into an include angle was established when powerful \*\* 41 of a remote controller 19 was operated during operation in the air conditioner of the gestalt of this operation, the blow-off include angle of the blow-off style from an indoor unit 8 is easily changeable. Therefore, a defecation operation of the indoor air by the air cleaner 10 can be demonstrated effectively, and the defecation effectiveness of the indoor air by the air cleaner 10 can be heightened.

[0059] Furthermore, the 1st control mode at the time of usual operation which usually turned the vertical louver 21 to the abbreviation horizontal direction in the air conditioner of the gestalt of this operation at the time of control of the electrostatic precipitator 11 in operation and which it blows off and is rotated at an include angle, The blow-off include angle which turned the vertical louver 21 in the substantial verticality direction when powerful \*\* 41 of a remote controller 19 was operated, Or since it blew off and the change means which switches the 2nd control mode at the time of powerful clarification operation towards slanting down one which it blows off and is changed into an include angle was formed in the wind control means When powerful \*\* 41 of a remote controller 19 is operated, it can be made to change to the blow-off angular position which shows the include angle of the vertical louver 21 to drawing 6 , which was turned horizontally and which was turned to slanting down one as it blew off and was shown in drawing 2 from the angular position. Therefore, the blow-off include angle suitable for a user can be attained immediately at any time, without performing fine include-angle adjustment of the actuation vertical louver 21, since it can blow off according to the easy activity which depresses and operates powerful \*\* 41 of a remote controller 19 and the blow-off include angle of a wind can be moved to the optimal location.

[0060] Moreover, since it has the function made to swing the vertical louver 21 continuously when powerful \*\* 41 of a remote controller 19 is operated in the air conditioner of the gestalt of this operation, the defecation effectiveness of the indoor air by the air cleaner 10 can be heightened further.

[0061] In addition, by the air conditioner of the gestalt of this operation, when powerful \*\* 41 of

a remote controller 19 was operated, the configuration which changes the blow-off include angle of the blow-off style by the vertical louver 21 in the vertical direction was shown, but when powerful \*\* 41 of a remote controller 19 is operated, you may make it the configuration which establishes the longitudinal-direction control means of the blow-off style made to swing a right-and-left louver continuously.

[0062] Furthermore, in the air conditioner of the gestalt of this operation, you may make it the configuration to which the airflow of an air conditioner is made to increase according to the service condition shown in the next table 1 by pushing powerful \*\* 41 of a remote controller 19.

[0063]

[Table 1]

汚れのゾーン	自動時ファン モータ速度	強力運転時
4	W9	+ 3 ステップ
3	W6	+ 3 ステップ
2	W4	+ 2 ステップ
1	W1	+ 1 ステップ

[0064] In addition, the zone of the dirt of the above-mentioned table 1 has so large that a figure is large the degree of indoor dirt, and at the time of automatic, as for a fan motor rate, the rotational speed of the indoor fan's 9 fan motor becomes high, so that the figure beside W is large.

[0065] And the defecation effectiveness of the indoor air by the air cleaner 10 can be further heightened by adjusting the rotational speed of the indoor fan's 9 fan motor according to the magnitude of the degree of indoor dirt as shown in the above-mentioned table 1, and making the blow-off airflow of the blow-off style by the vertical louver 21 increase further, when the degree of dirt is large.

[0066] Furthermore, when powerful \*\* 41 of a remote controller 19 is operated, you may make it the configuration to which the airflow of the blow-off style of an air conditioner is made to increase according to the service condition shown in the next table 2.

[0067]

[Table 2]

設定風量	ファンモータ 速度	強力運転時
H (強)	WC	+ 3 ステップ
M (弱)	W9	+ 2 ステップ
L (微)	W6	+ 3 ステップ

[0068] Here, the airflow of the blow-off style under air-conditioner operation is being fixed by manual operation with one setting airflow of the three-stages of H, M, and L. And when powerful \*\* 41 of a remote controller 19 is operated during operation with the setting airflow of each phase, the defecation effectiveness of the indoor air by the air cleaner 10 can be further heightened by making the airflow of the blow-off style of an air conditioner increase further according to setting airflow.

[0069] Moreover, drawing 7 (A) - (C) shows the gestalt of operation of the 2nd of this invention. the case where, as for the gestalt of this operation, the \*\*\*\* operation operating button 39 of a remote controller 19 is operated -- the airflow of the blow-off style of an air conditioner -- it is fixed and dust picking operation (the 1st operation mode) which changes the sense for the louver constructs 21a and 21b of two sheets of the vertical louver 21 in the direction of plurality is carried out to the configuration performed the predetermined setting time set up beforehand.

[0070] At the time of this dust picking operation, it changes the rotation drive of the louver constructs 21a and 21b of two sheets of the vertical louver 21 into the condition of having

rotated the air-current floor side blow-off include angle as shown at drawing 7 (A), the condition of having rotated the air-current 2-way blow-off include angle as shown in drawing 7 (B), and the condition of having rotated the head-lining blow-off include angle as shown in drawing 7 (C) at sequential independence.

[0071] Furthermore, after this dust picking operation is performed setting time, an air conditioner returns to the usual automatic control condition (the 2nd operation mode). Therefore, the rotation include angle of the louver constructs 21a and 21b of two sheets of the vertical louver 21 is fixed at a predetermined setting include angle, and automatic control of the airflow of the blow-off style is carried out.

[0072] Then, the following effectiveness is done so if it is in the thing of the above-mentioned configuration. Namely, when the \*\*\*\* operation operating button 39 of a remote controller 19 is operated with the gestalt of this operation Since dust picking operation which changes the sense in the direction of plurality, namely, switches the louver constructs 21a and 21b of two sheets of the vertical louver 21 to it one by one in order of drawing 7 (A), drawing 7 (B), and drawing 7 (C) was carried out to the configuration performed the predetermined setting time set up beforehand It can be made to be able to soar at the dust of a floor and dust can be taken effectively. Therefore, there is effectiveness which can perform dust picking operation in which the louver include angle was excellent compared with the case where it is fixed in the fixed direction during air clarification operation like before.

[0073] Furthermore, comfortable operation can be performed after dust picking operation by fixing the rotation include angle of the louver constructs 21a and 21b of two sheets of the vertical louver 21 at a predetermined setting include angle, and carrying out automatic control of the airflow of the blow-off style.

[0074] Moreover, drawing 8 is a flow chart which shows the modification of control of the electrostatic precipitator 11 in the air conditioner of the gestalt of the 1st operation. In this modification, actuation, i.e., actuation of the air conditioner after step S12 in the flow chart of drawing 5, when ON actuation of the \*\*\*\* operation operating button 39 is carried out during operation of the air conditioner of the gestalt of the 1st operation is changed as follows.

[0075] That is, in this modification, when it is judged for the \*\*\*\* operation operating button 39 of a remote controller 19 at step S12 whether it is an ON state, and the \*\*\*\* operation operating button 39 is judged to be an OFF state, it progresses to step S11 like the gestalt of the 1st operation. Here, when the \*\*\*\* operation operating button 39 is judged to be an ON state, it progresses to the following step S21.

[0076] At this step S21, the timer 2 beforehand set as the predetermined setup time starts. Then, at the following step S22, the 1st louver motor 24 for the drive of the vertical louver 21 drives, and swing of the vertical louver 21 is started. Then, it is judged for a timer 2 at the following step S23 whether it is deadline. When judged as the condition that the timer 2 has not passed the deadline of at this step S23, it is returned to step S22.

[0077] Moreover, when judged as the condition that the timer 2 passed the deadline of at step S23, it progresses to the following step S24, and swing of the vertical louver 21 is suspended. Then, the timer 3 set as the predetermined setup time starts beforehand at the following step S25.

[0078] Then, at the following step S26, it is judged for a timer 3 whether it is deadline. When judged as the condition that the timer 3 has not passed the deadline of at this step S26, it is returned to step S26.

[0079] Moreover, when judged as the condition that the timer 3 passed the deadline of at step S26, it progresses to the following step S27, and it is judged for the \*\*\*\* operation operating button 39 of a remote controller 19 whether it is an OFF state. Here, when the \*\*\*\* operation operating button 39 is judged to be an ON state, it is returned to step S21, and when the \*\*\*\* operation operating button 39 is judged to be an OFF state, it progresses to step S11.

[0080] Then, the following effectiveness is done so if it is in the thing of the above-mentioned configuration. That is, after only the setup time by the timer 2 makes swing actuation of the vertical louver 21 perform at the time of ON actuation of the \*\*\*\* operation operating button 39 by setting the setup time of a timer 2, and the setup time of a timer 3 as arbitration,

respectively, swing actuation is stopped, and only the setup time set up by the timer 3 can repeat swing actuation of the vertical louver 21, and can be made to perform by the same interval as henceforth in this modification. Therefore, the effectiveness of dust picking operation at the time of ON actuation of the \*\*\*\* operation operating button 39 can be heightened.

[0081] Moreover, drawing 9 (A) - (C) shows the gestalt of other operations of this invention. Here, the operation pattern of dust picking operation into which the sense is changed for the louver constructs 21a and 21b of two sheets of the vertical louver 21 in the direction of plurality is changed as follows. In addition, the condition that (1) made the air-current floor side blow-off include angle rotate the louver constructs 21a and 21b of two sheets of the vertical louver 21 in drawing 9 (A) - (C) as shown in drawing 7 (A), The condition which the air-current 2-way blow-off include angle was made to rotate as (2) is shown in drawing 7 (B), and the condition of having rotated the head-lining blow-off include angle as (3) was shown in drawing 7 (C) are shown, respectively.

[0082] That is, after dust picking operation (the 1st operation mode), by the 2nd operation mode, drawing 9 (A) blows off gradually and shows the operation pattern which drops and carries out comfortable operation of the airflow of a wind. Here, it blows off by the 1st operation mode, and after carrying out operation which switches the louver constructs, predetermined time and the vertical louver 21, 21a and 21b of two sheets one by one by airflow regularity of a wind in order of (operation which changes the sense in the direction of plurality, (1), (2), and (3), it blows off gradually and the airflow of a wind is dropped on the 2nd operation mode. [ i.e., ]

[0083] Then, if it is in the thing of the above-mentioned configuration, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, and dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation. Furthermore, with the gestalt of this operation, comfortable dust picking operation can be performed at the 2nd operation mode by dropping gradually the airflow of the blow-off style of dust picking operation.

[0084] Moreover, drawing 9 (B) shows the operation pattern which the louver include angle and the airflow of the blow-off style of the louver constructs 21a and 21b of two sheets of the vertical louver 21 can choose as arbitration by the 2nd operation mode after dust picking operation (the 1st operation mode). Here, after carrying out operation which blows off by the 1st operation mode, switches the louver constructs, predetermined time and the vertical louver 21, 21a and 21b of two sheets one by one in order of (1), (2), and (3) by airflow regularity of a wind, and changes the sense in the direction of plurality, in the 2nd operation mode, a louver include angle presupposes some [ the louver sense in the 1st operation mode ].

[0085] Then, if it is in the thing of the above-mentioned configuration, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, and dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation. Furthermore, with the gestalt of this operation, after dust picking operation, a required louver include angle can be chosen and comfortable operation can be performed in the 2nd operation mode.

[0086] Furthermore, drawing 9 (C) shows the operation pattern which lengthened the interval which changes the louver include angle of the louver constructs 21a and 21b of two sheets of the vertical louver 21, and increased the effectiveness of dust picking operation by the 2nd operation mode after dust picking operation (the 1st operation mode). Here, after carrying out operation which switches the louver constructs, predetermined time and the vertical louver 21, 21a and 21b of two sheets one by one in order of (1), (2), and (3) at the interval for 30 seconds by the 1st operation mode, and changes the sense in the direction of plurality, in the 2nd operation mode, the interval which changes a louver include angle is lengthened at 60 seconds.

[0087] Then, if it is in the thing of the above-mentioned configuration, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, and dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation. Furthermore, with the gestalt of this operation, the louver include-angle change time amount under dust picking operation can be chosen by the 2nd operation mode, and dust picking operation which was in the room can be performed.

[0088] Moreover, drawing 10 (A) and (B) show the operation pattern of the air conditioner of the gestalt of still more nearly another operation of this invention. Here, the operation pattern of dust picking operation into which the sense is changed for the louver constructs 21a and 21b of two sheets of the vertical louver 21 in the direction of plurality is changed as follows.

[0089] That is, drawing 10 (A) shows the operation pattern switched to the usual unattended operation (the 2nd operation mode) with the output of a gas sensor 27, after performing operation (the 1st operation mode) which changes the sense for a predetermined time louver in the direction of plurality during air clarification operation (dust picking operation). Here, after carrying out operation which blows off by the 1st operation mode, switches the louver constructs, predetermined time and the vertical louver 21, 21a and 21b of two sheets one by one in order of (1), (2), and (3) by airflow regularity of a wind, and changes the sense in the direction of plurality, the output of a gas sensor 27 is followed in the 2nd operation mode.

[0090] Then, if it is in the thing of the above-mentioned configuration, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, and dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation. Furthermore, with the gestalt of this operation, it blows off by the 2nd operation mode, automatic control of the airflow of a wind is carried out with a gas sensor 27, and comfortable operation can be performed.

[0091] Furthermore, drawing 10 (B) shows the operation pattern switched to the usual unattended operation (the 2nd operation mode) with the output of a gas sensor 27, after controlling dust picking operation with a gas sensor 27 (the 1st operation mode). Here, the airflow in the 1st operation mode follows a gas sensor 27.

[0092] Then, if it is in the thing of the above-mentioned configuration, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, and dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation. Furthermore, with the gestalt of this operation, it blows off by the 1st operation mode, automatic control of the airflow of a wind is carried out with a gas sensor 27, and comfortable operation can be performed.

[0093] Moreover, drawing 11 (A) - (C) shows the gestalt of still more nearly another operation of this invention. Although the gestalt of the 1st operation showed the configuration which formed the plate-like louver constructs 21a and 21b of two sheets in the vertical louver 21, the plate-like louver construct 61 of one sheet constitutes the vertical louver 21 from the gestalt of this operation. Here, the condition that drawing 11 (A) made the air-current floor side blow-off include angle rotate the louver construct 61 of the vertical louver 21, the condition that drawing 11 (B) made the blow-off include angle under air-current slant rotate the louver construct 61 of the vertical louver 21, and the condition that drawing 11 (C) made the head-lining blow-off include angle rotate the louver construct 61 of the vertical louver 21 are shown, respectively. And it blows off at the time of dust picking operation, and the louver construct 61 of one sheet of predetermined time and the vertical louver 21 is switched one by one by airflow regularity of a wind in order of drawing 11 (A), drawing 11 (B), and drawing 11 (C), and the sense is changed in the direction of plurality and it operates to it.

[0094] Then, since the sense is changed in the direction of plurality at the time of dust picking operation and the plate-like louver construct 61 of one sheet which constitutes the vertical louver 21 was operated to it at it if it was in the thing of the above-mentioned configuration, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation.

[0095] Moreover, drawing 12 (A) and (B) show the air conditioner of the gestalt of still more nearly another operation of this invention. With the gestalt of this operation, as shown in drawing 12 (A), the dust picking lamp 71 is formed in the body of an indoor unit 8. During dust picking operation, this dust picking lamp 71 is held in the state of lighting, and is switched off in the condition other than dust picking operation.

[0096] Furthermore, in the air conditioner of the gestalt of this operation, as shown in drawing 12 (B), dust picking \*\* 73 is formed in the remote controller 72. At the time of depression actuation



of this dust picking \*\* 73, dust picking operation which is the 1st operation mode of drawing 9 (A) - (C) and drawing 10 (A), and (B) is performed.

[0097] Then, since dust picking \*\* 73 was formed in the remote controller 72 if it was in the thing of the above-mentioned configuration, dust picking operation of the 1st operation mode can be easily chosen by depressing and operating dust picking \*\* 73. Therefore, dust picking operation can be performed easily. Furthermore, since the dust picking lamp 71 is held in the state of lighting during dust picking operation, dust picking operation can check easily by viewing the lighting condition of this dust picking lamp 71.

[0098] Furthermore, this invention is not limited to the gestalt of the above-mentioned implementation. For example, one side of the louver constructs 21a and 21b of two sheets of the vertical louver 21 is fixed, and only another side may make it a rotatable configuration. Moreover, the louver construct of three or more sheets may be prepared, and, further in addition to this, of course, deformation implementation can be variously carried out in the range which does not deviate from the summary of this invention.

[0099]

[Effect of the Invention] The operating button for powerful clarification operation for increasing the capacity of an electrostatic precipitator to abbreviation maximum capacity according to invention concerning claim 1 is prepared in remote control equipment. Since the control means which increases the rotational frequency of a blower and the operating voltage of an electrostatic precipitator, respectively, and increases an electrostatic precipitator to abbreviation maximum capacity was established when the operating button for powerful clarification operation was operated during body operation of an air conditioner The maximum dust collection capacity by the electrostatic precipitator can be attained simply and correctly by one button grabbing of remote control equipment.

[0100] Since it was made to make a vertical louver swing continuously by the control means of the blow-off style when the operating button for dust was operated during operation of the body of an air conditioner according to invention concerning claim 6, it can be made to be able to soar at the dust of a floor at the time of dust picking operation, dust can be taken effectively, and there is effectiveness which can perform outstanding dust picking operation.

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[Translation done.]

**\* NOTICES \***

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

**[Drawing 1]** The perspective view showing the appearance of the indoor unit of the air conditioner in the gestalt of operation of the 1st of this invention.

**[Drawing 2]** Drawing of longitudinal section of the indoor unit of the gestalt of this operation.

**[Drawing 3]** The outline block diagram showing the refrigerating cycle of the air conditioner of the gestalt of this operation.

**[Drawing 4]** The front view showing the condition of having opened covering of the remote controller in the air conditioner of the gestalt of this operation.

**[Drawing 5]** The flow chart for control of the electrostatic precipitator in the air conditioner of the gestalt of this operation.

**[Drawing 6]** Drawing of longitudinal section of an important section showing the condition of having made the horizontal blow-off include angle rotating the vertical louver in the indoor unit of the air conditioner of the gestalt of this operation.

**[Drawing 7]** It is drawing of longitudinal section of an important section showing drawing of longitudinal section of an important section showing the condition that (A) made the air-current floor side blow-off include angle rotate the vertical louver of an indoor unit, drawing of longitudinal section of an important section showing the condition that (B) made the air-current 2-way blow-off include angle rotate the vertical louver of an indoor unit, and the condition that (C) made the head-lining blow-off include angle rotate the vertical louver of an indoor unit, by showing the gestalt of operation of the 2nd of this invention.

**[Drawing 8]** The flow chart which shows the modification of control of the electrostatic precipitator in the air conditioner of the gestalt of the 1st operation.

**[Drawing 9]** It is what shows the operation pattern of the air conditioner of the gestalt of other operations of this invention. The property Fig. in which (A's) dropping airflow on gradually after dust picking operation, and showing the operation pattern which carries out comfortable operation, For (B), (C) is the property Fig. showing the operation pattern which after dust picking operation and a louver include angle can choose as arbitration, and the property Fig. showing the operation pattern which lengthened the interval which changes a louver include angle after dust picking operation, and increased the effectiveness of dust picking operation.

**[Drawing 10]** It is the property Fig. which shows the operation pattern of the air conditioner of the gestalt of still more nearly another operation of this invention, and is shown in the operation pattern which switches to automatic air clarification operation with the output of a sensor after the property Fig. showing the operation pattern which switches to automatic air clarification operation with the output of a sensor after (A) performs operation which changes the sense for a predetermined-time louver in the direction of plurality during air clarification operation, and (B) control dust picking operation by the sensor.

**[Drawing 11]** It is what shows the operating state of the vertical louver of the air conditioner of the gestalt of still more nearly another operation of this invention. Drawing of longitudinal section of an important section showing the condition that (A) made the air-current floor side blow-off include angle rotate the vertical louver of an indoor unit, For (B), (C) is drawing of longitudinal section of an important section showing the condition of having made the air-current 2-way

blow-off include angle rotating the vertical louver of an indoor unit, and drawing of longitudinal section of an important section showing the condition of having made the head-lining blow-off include angle rotating the vertical louver of an indoor unit.

[Drawing 12] It is the front view showing the important section configuration of the perspective view in which (A) shows the appearance of the indoor unit of an air conditioner, and a remote controller [ in / in (B) / an air conditioner ] by showing the air conditioner of the gestalt of still more nearly another operation of this invention.

[Description of Notations]

3 Interior-of-a-Room Side Heat Exchanger

8 Indoor Unit (Interior Unit)

9 Indoor Fan (Blower)

11 Electrostatic Precipitator

14 Control Circuit (Control Means)

19 Remote Controller (Remote Control Equipment)

39 \*\*\*\* Operation Operating Button (Operating Button for Dust)

41 Powerful \*\* (Operating Button for Powerful Clarification Operation)

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[Translation done.]

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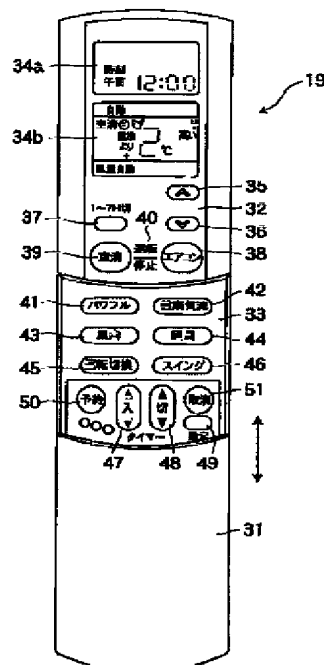
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(54) 【発明の名称】 空気調和機

(57) 【要約】

【課題】本発明は、リモートコントロール装置の1つのボタン操作で簡単かつ正確に電気集塵機による最大集塵能力の達成を行う事が可能な空気調和機を提供することを最も主要な特徴とする。

【解決手段】電気集塵機11の能力を略最大能力に増大するためのパワフル釦41をリモートコントローラ19に設け、空気調和機の本体運転中にパワフル釦41が操作された場合に、室内ファン9の回転数および電気集塵機11の動作電圧をそれぞれ増大させて電気集塵機11を略最大能力に増大させるようにしたものである。



## 【特許請求の範囲】

【請求項1】 室内機に熱交換器と送風機とを設けると共に室内の塵埃を収集する電気集塵機を搭載し、遠隔操作により前記送風機及び前記電気集塵機を制御するリモートコントロール装置を備えた空気調和機において、前記電気集塵機の能力を略最大能力に増大するための強力清浄運転用操作釦を前記リモートコントロール装置に設け、

前記空気調和機の本体運転中に前記強力清浄運転用操作釦が操作された場合に、前記送風機の回転数および前記電気集塵機の動作電圧をそれぞれ増大させて前記電気集塵機を略最大能力に増大させる制御手段を設けたことを特徴とする空気調和機。

【請求項2】 前記室内機は熱交換空気の出し口からの吹出し風の吹出し角度を上下方向に変更する上下ルーバと、

この上下ルーバの向きを変更する上下ルーバ向き変更手段と、

この上下ルーバ向き変更手段の動作を制御し、前記強力清浄運転用操作釦が操作された場合に、前記上下ルーバを略鉛直方向に向けた吹出し角度、或いは斜め下方向に向けた吹出し角度に変更する吹出し風制御手段とを具備したことを特徴とする請求項1に記載の空気調和機。

【請求項3】 前記吹出し風制御手段は前記空気調和機の本体の通常運転における前記電気集塵機の制御時に、前記上下ルーバを略水平方向に向けた吹出し角度に回転する通常運転時の第1の制御モードと、

前記強力清浄運転用操作釦が操作された場合に、前記上下ルーバを略鉛直方向に向けた吹出し角度、或いは斜め下方向に向けた吹出し角度に変更する強力清浄運転時の第2の制御モードとを切換える切換え手段を備えていることを特徴とする請求項2に記載の空気調和機。

【請求項4】 前記吹出し風制御手段は前記強力清浄運転用操作釦が操作された場合に、前記上下ルーバを連続的にスイングさせる機能を備えていることを特徴とする請求項2に記載の空気調和機。

【請求項5】 前記室内機は前記吹出し口に吹出し風の吹出し角度を左右方向に変更する左右ルーバと、

この左右ルーバの向きを変更する左右ルーバ向き変更手段と、

この左右ルーバ向き変更手段の動作を制御し、前記強力清浄運転用操作釦が操作された場合に、前記左右ルーバを連続的にスイングさせる吹出し風左右方向制御手段とを具備したことを特徴とする請求項2に記載の空気調和機。

【請求項6】 室内機に熱交換器と送風機とを設けると共に室内の塵埃を収集する電気集塵機を搭載し、遠隔操作により前記送風機及び前記電気集塵機を制御するリモートコントロール装置を備えた空気調和機において、前記リモートコントロール装置に前記電気集塵機を駆動

して室内の塵埃を収集するための塵埃用操作釦を設けるとともに、

前記室内機に熱交換空気の出し口からの吹出し風の吹出し角度を上下方向に変更する上下ルーバと、

この上下ルーバの向きを変更する上下ルーバ向き変更手段と、

この上下ルーバ向き変更手段の動作を制御し、前記空気調和機の本体の運転中に前記塵埃用操作釦が操作された場合に、前記上下ルーバを連続的にスイングさせる吹出し風制御手段とを設けたことを特徴とする空気調和機。

【請求項7】 前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを所定時間だけ連続的にスイングさせる定時間連続スイング機能を備えていることを特徴とする請求項6に記載の空気調和機。

【請求項8】 前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを所定時間毎にスイングさせる間欠スイング機能を備えていることを特徴とする請求項6に記載の空気調和機。

【請求項9】 前記室内機は空気汚れを検知するセンサを備え、

前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを連続的にスイングさせ、前記センサの出力値が予め設定された所定の設定値以下になると前記上下ルーバのスイングを停止させるスイング制御機能を備えていることを特徴とする請求項6に記載の空気調和機。

【請求項10】 前記吹出し風制御手段は前記センサの出力値が前記設定値以下になると前記送風機の回転数を低下させる送風機制御機能を備えていることを特徴とする請求項9に記載の空気調和機。

【請求項11】 前記室内機は空気汚れを検知するセンサを備え、

前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを予め設定された所定の設定時間だけ連続的にスイングさせ、前記設定時間の経過後に前記上下ルーバのスイングを停止し、前記センサの出力値に基づいて前記送風機の回転数を制御する制御機能を備えていることを特徴とする請求項6に記載の空気調和機。

【請求項12】 前記室内機は空気汚れを検知するセンサを備え、

前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを予め設定された所定の設定時間だけ連続的にスイングさせ、前記設定時間の経過後に前記上下ルーバのスイングを停止し、前記センサの出力値に基づいて前記電気集塵機の動作電圧を制御する制御機能を備えていることを特徴とする請求項6に記載の空気調和機。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は室内の塵埃を収集する電気集塵機が室内機に搭載され、空気清浄運転が可能な空気調和機に関する。

【0002】

【従来の技術】一般に、室内機に電気集塵機を内蔵し、空気清浄機能を備えた空気調和機が開発されている。この種の空気調和機用のリモートコントロール装置では空気調和機の暖房、冷房あるいは除湿運転等の空気調和（空調）運転のON、OFFを操作する「運転／停止」用の操作釦と、空気清浄（空清）運転のON、OFFを操作する「空清」用の操作釦と、その他の各種設定用の複数の操作釦とが設けられている。ここで、リモートコントロール装置の各種設定用の操作釦としては例えば室内ファンの回転数を変更して室内機における熱交換空気の吹出し口からの吹出し風の吹出し風量を変更する風量変更用の操作釦や、室内機の吹出し口に装着されたルーバの角度を変更して吹出し口からの吹出し風の吹出し角度を変更する風向変更用の操作釦や、電気集塵機の動作電圧変更用の操作釦等が設けられている。

【0003】そして、従来構成のものにあつては電気集塵機による空清運転時に強力な集塵能力を発揮させる場合にはリモートコントロール装置の風量変更用の操作釦や、風向変更用の操作釦や、電気集塵機の動作電圧変更用の操作釦等を使用者が手動で個別に調整する構成になっている。

【0004】

【発明が解決しようとする課題】上記従来構成のものにあつては空気調和機の電源を入れるたびにリモートコントロール装置の各種設定用の複数の操作釦を個別に操作して使用者の好みに合ったルーバ角度等を設定する必要があるため、リモートコントロール装置の操作が煩雑なものとなる問題がある。

【0005】さらに、電気集塵機による空清運転時に強力な集塵能力を発揮させる場合にもリモートコントロール装置の複数の操作釦を個別に操作する面倒な操作が必要になるので、電気集塵機に最大集塵性能を達成させるためのルーバの角度・風量・電気集塵機の動作電圧等の条件を正確、かつ素早く行う事は困難となっている。

【0006】本発明は上記事情に着目してなされたもので、その目的は、リモートコントロール装置の1つのボタン操作で簡単かつ正確に電気集塵機による最大集塵能力の達成を行う事が可能な空気調和機を提供することにある。

【0007】

【課題を解決するための手段】請求項1の発明は室内機に熱交換器と送風機とを設けると共に室内の塵埃を収集する電気集塵機を搭載し、遠隔操作により前記送風機及び前記電気集塵機を制御するリモートコントロール装置を備えた空気調和機において、前記電気集塵機的能力を略最大能力に増大するための強力清浄運転用操作釦を前

記リモートコントロール装置に設け、前記空気調和機の本体運転中に前記強力清浄運転用操作釦が操作された場合に、前記送風機の回転数および前記電気集塵機の動作電圧をそれぞれ増大させて前記電気集塵機を略最大能力に増大させる制御手段を設けたことを特徴とする空気調和機である。

【0008】そして、本請求項1の発明では空気調和機の本体運転中にリモートコントロール装置の強力清浄運転用操作釦が操作された場合に、制御手段によって送風機の回転数および電気集塵機の動作電圧をそれぞれ増大させて電気集塵機を略最大能力に増大させるようにしたので、リモートコントロール装置の1つのボタン操作で簡単かつ正確に電気集塵機による最大集塵能力の達成を行うことができる。

【0009】請求項2の発明は前記室内機は熱交換空気の吹出し口からの吹出し風の吹出し角度を上下方向に変更する上下ルーバと、この上下ルーバの向きを変更する上下ルーバ向き変更手段と、この上下ルーバ向き変更手段の動作を制御し、前記強力清浄運転用操作釦が操作された場合に、前記上下ルーバを略鉛直方向に向けた吹出し角度、或いは斜め下方向に向けた吹出し角度に変更する吹出し風制御手段とを具備したことを特徴とする請求項1に記載の空気調和機である。

【0010】そして、本請求項2の発明では強力清浄運転用操作釦が操作された場合に、吹出し風制御手段によって上下ルーバを略鉛直方向に向けた吹出し角度、或いは斜め下方向に向けた吹出し角度に変更するようにしたので、床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。

【0011】請求項3の発明は前記吹出し風制御手段は前記空気調和機の本体の通常運転における前記電気集塵機の制御時に、前記上下ルーバを略水平方向に向けた吹出し角度に回転する通常運転時の第1の制御モードと、前記強力清浄運転用操作釦が操作された場合に、前記上下ルーバを略鉛直方向に向けた吹出し角度、或いは斜め下方向に向けた吹出し角度に変更する強力清浄運転時の第2の制御モードとを切替える切替え手段を備えていることを特徴とする請求項2に記載の空気調和機である。

【0012】そして、本請求項3の発明では吹出し風制御手段の切替え手段によって通常運転時の第1の制御モードと、強力清浄運転時の第2の制御モードとを切替え、第1の制御モードでは空気調和機の本体の通常運転における電気集塵機の制御時に、上下ルーバを略水平方向に向けた吹出し角度に回転させる。ここで、強力清浄運転用操作釦が操作された場合には、切替え手段によって強力清浄運転時の第2の制御モードに切替え、上下ルーバを略鉛直方向に向けた吹出し角度、或いは斜め下方向に向けた吹出し角度に変更するようにしたので、強力清浄運転時に床のほこりを舞い上がらせ、効果的にほこり

を取ることができ、優れたほこり取り運転ができる効果がある。

【0013】請求項4の発明は前記吹出し風制御手段は前記強力清浄運転用操作釦が操作された場合に、前記上下ルーバを連続的にスイングさせる機能を備えていることを特徴とする請求項2に記載の空気調和機である。

【0014】そして、本請求項4の発明では強力清浄運転用操作釦が操作された場合に、上下ルーバを連続的にスイングさせるようにしたので、強力清浄運転時に床のほこりを舞い上がらせ、効果的にほこりを取ることができ、優れたほこり取り運転ができる効果がある。

【0015】請求項5の発明は前記室内機は前記吹出し口に吹出し風の吹出し角度を左右方向に変更する左右ルーバと、この左右ルーバの向きを変更する左右ルーバ向き変更手段と、この左右ルーバ向き変更手段の動作を制御し、前記強力清浄運転用操作釦が操作された場合に、前記左右ルーバを連続的にスイングさせる吹出し風左右方向制御手段とを具備したことを特徴とする請求項2に記載の空気調和機である。

【0016】そして、本請求項5の発明では強力清浄運転用操作釦が操作された場合に、吹出し風左右方向制御手段によって左右ルーバを連続的にスイングさせるようにしたので、強力清浄運転時に床のほこりを舞い上がらせ、効果的にほこりを取ることができ、優れたほこり取り運転ができる効果がある。

【0017】請求項6の発明は室内機に熱交換器と送風機とを設けると共に室内の塵埃を収集する電気集塵機を搭載し、遠隔操作により前記送風機及び前記電気集塵機を制御するリモートコントロール装置を備えた空気調和機において、前記リモートコントロール装置に前記電気集塵機を駆動して室内の塵埃を収集するための塵埃用操作釦を設けるとともに、前記室内機に熱交換空気の出し口からの吹出し風の吹出し角度を上下方向に変更する上下ルーバと、この上下ルーバの向きを変更する上下ルーバ向き変更手段と、この上下ルーバ向き変更手段の動作を制御し、前記空気調和機の本体の運転中に前記塵埃用操作釦が操作された場合に、前記上下ルーバを連続的にスイングさせる吹出し風制御手段とを設けたことを特徴とする空気調和機である。

【0018】そして、本請求項6の発明では空気調和機の本体の運転中に塵埃用操作釦が操作された場合に、吹出し風制御手段によって上下ルーバを連続的にスイングさせるようにしたので、ほこり取り運転時に床のほこりを舞い上がらせ、効果的にほこりを取ることができ、優れたほこり取り運転ができる効果がある。

【0019】請求項7の発明は前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを所定時間だけ連続的にスイングさせる定時間連続スイング機能を備えていることを特徴とする請求項6に記載の空気調和機である。

【0020】そして、本請求項7の発明では塵埃用操作釦が操作された場合に、吹出し風制御手段の定時間連続スイング機能によって上下ルーバを所定時間だけ連続的にスイングさせるようにしたので、ほこり取り運転時に床のほこりを舞い上がらせ、効果的にほこりを取ることができ、優れたほこり取り運転ができる効果がある。

【0021】請求項8の発明は前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを所定時間毎にスイングさせる間欠スイング機能を備えていることを特徴とする請求項6に記載の空気調和機である。

【0022】そして、本請求項8の発明では塵埃用操作釦が操作された場合に、吹出し風制御手段の間欠スイング機能によって上下ルーバを所定時間毎にスイングさせるようにしたので、ほこり取り運転時に床のほこりを舞い上がらせ、効果的にほこりを取ることができ、優れたほこり取り運転ができる効果がある。

【0023】請求項9の発明は前記室内機は空気汚れを検知するセンサを備え、前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを連続的にスイングさせ、前記センサの出力値が予め設定された所定の設定値以下になると前記上下ルーバのスイングを停止させるスイング制御機能を備えていることを特徴とする請求項6に記載の空気調和機である。

【0024】そして、本請求項9の発明では塵埃用操作釦が操作された場合に、吹出し風制御手段のスイング制御機能によって上下ルーバを連続的にスイングさせ、空気汚れを検知するセンサの出力値が予め設定された所定の設定値以下になると上下ルーバのスイングを停止させるようにしたので、ほこり取り運転時に床のほこりを舞い上がらせ、効果的にほこりを取ることができ、優れたほこり取り運転ができる効果がある。

【0025】請求項10の発明は前記吹出し風制御手段は前記センサの出力値が前記設定値以下になると前記送風機の回転数を低下させる送風機制御機能を備えていることを特徴とする請求項9に記載の空気調和機である。

【0026】そして、本請求項10の発明では空気汚れを検知するセンサの出力値が予め設定された所定の設定値以下になると吹出し風制御手段の送風機制御機能によって送風機の回転数を低下させるようにしたので、ほこり取り運転後の第2の運転モードでは吹出し風の風量を自動コントロールし、快適運転ができる。

【0027】請求項11の発明は前記室内機は空気汚れを検知するセンサを備え、前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを予め設定された所定の設定時間だけ連続的にスイングさせ、前記設定時間の経過後に前記上下ルーバのスイングを停止し、前記センサの出力値に基づいて前記送風機の回転数を制御する制御機能を備えていることを特徴とする請求項6に記載の空気調和機である。

【0028】そして、本請求項11の発明では塵埃用操作釦が操作された場合に、上下ルーバを予め設定された所定の設定時間だけ連続的にスイングさせ、設定時間の経過後に上下ルーバのスイングを停止し、空気汚れを検知するセンサの出力値に基づいて吹出し風制御手段の送風機回転数の制御機能によって送風機の回転数を制御するようにしたので、ほこり取り運転時に床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。さらに、ほこり取り運転後の第2の運転モードでは吹出し風の風量を自動コントロールし、快適運転ができる。

【0029】請求項12の発明は前記室内機は空気汚れを検知するセンサを備え、前記吹出し風制御手段は前記塵埃用操作釦が操作された場合に、前記上下ルーバを予め設定された所定の設定時間だけ連続的にスイングさせ、前記設定時間の経過後に前記上下ルーバのスイングを停止し、前記センサの出力値に基づいて前記電気集塵機の動作電圧を制御する制御機能を備えていることを特徴とする請求項6に記載の空気調和機である。

【0030】そして、本請求項12の発明では塵埃用操作釦が操作された場合に、吹出し風制御手段の制御機能によって上下ルーバを予め設定された所定の設定時間だけ連続的にスイングさせ、設定時間の経過後に上下ルーバのスイングを停止し、空気汚れを検知するセンサの出力値に基づいて電気集塵機の動作電圧を制御するようにしたので、ほこり取り運転時に床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。さらに、ほこり取り運転後の第2の運転モードでは吹出し風の風量を自動コントロールし、快適運転ができる。

【0031】

【発明の実施の形態】以下、本発明の第1の実施の形態を図1乃至図6を参照して説明する。図3は本実施の形態の空気調和機のヒートポンプ式の冷凍サイクルを示すものである。図3中で、1は圧縮機、2は四方切換弁、3は室内側熱交換器、4は膨張弁、5は室外側熱交換器である。

【0032】ここで、圧縮機1にはインバータ装置6を接続させている。さらに、圧縮機1は四方切換弁2、膨張弁4および室外側熱交換器5とともに、図示しない室外ユニット（室外機）内に組み込まれている。この室外ユニットには室外側熱交換器5の近傍位置に配置される室外ファン7が装着されている。

【0033】また、室内側熱交換器3は図1および図2に示す室内ユニット（室内機）8内に組み込まれている。この室内ユニット8にはさらに横流ファンである室内ファン（送風機）9が装着されている。そして、この室内ユニット8は、図示しない室外ユニットと接続されて、暖房・冷房・ドライ（除湿）といった空気調和運転の機能を発揮するようになっている。

【0034】さらに、本実施の形態の室内ユニット8には、図2に示すように空気清浄機10が内蔵されている。この空気清浄機10は電気集塵機11と、この電気集塵機11の側方に並置される脱臭フィルタ12とから構成されている。ここで、電気集塵機11と脱臭フィルタ12とは、室内側熱交換器3の前面上部にそれぞれ独立に並べて配置されている。

【0035】また、電気集塵機11は高電圧発生回路13に接続されている。そして、本実施の形態の室内ユニット8は空気清浄機10の駆動により、脱臭フィルタ12によって脱臭されるとともに、電気集塵機11の電極によって空気中の微細な浮遊塵埃が帯電され、かつ集塵される。これにより、空気清浄の機能も発揮するようになっている。

【0036】なお、本明細書では空調運転とは、電気集塵機11の運転以外の空気調和機の運転（冷房、暖房、ドライなど）を意味し、エアコン運転とは空調運転または電気集塵機11の単独運転、空調運転及び電気集塵機11の併用運転のすべてを含んだ意味で使用する。

【0037】また、本実施の形態の室内ユニット8には、後述する赤外線受光部20と、熱交換空気の吹出し口からの吹出し風の吹出し角度を上下方向に変更する上下ルーバ21と、吹出し風の吹出し角度を左右方向に変更する図示しない左右ルーバとがそれぞれ設けられている。ここで、左右ルーバには上下方向に延設された羽根状のルーバ構成体が左右方向に複数並設されている。なお、左右ルーバはこれらのルーバ構成体が回転軸の軸回り方向にそれぞれ回動可能に支持されており、これらのルーバ構成体の回動動作にともない吹出し風の吹出し角度を左右方向に変更する構成になっている。

【0038】さらに、上下ルーバ21には図2に示すように室内ユニット8の下部に配設された平板状の2枚のルーバ構成体21a、21bが設けられている。これらのルーバ構成体21a、21bは室内ユニット8の左右方向（略水平方向）に延設された状態で並設されている。そして、これらのルーバ構成体21a、21bは回動軸23a、23bを中心にそれぞれ回動可能に支持されており、これらのルーバ構成体21a、21bの回動動作にともない吹出し風の吹出し角度を上下方向に変更する構成になっている。なお、2枚のルーバ構成体21a、21bは独立に回動操作可能になっている。

【0039】また、図3中で、参照符号14は本実施の形態の空気調和機の制御回路（制御手段）である。この制御回路14にはインバータ装置6、高電圧発生回路13、室外ファン7のファンモータ制御用の室外ファン制御回路15、外気温センサ16、室内ファン9のファンモータ制御用の室内ファン制御回路17、室温センサ18、赤外線受光部20、上下ルーバ21の駆動用の第1のルーバモータ24、左右ルーバの駆動用の第2のルーバモータ25、タイマー装置26および空気汚れ検知用



のガスセンサ27がそれぞれ接続されている。なお、タイマー装置26には3つのタイマー26a, 26b, 26cが内蔵され、それぞれ個別にセット可能になっている。

【0040】さらに、本実施の形態の空気調和機にはワイヤレス式のリモートコントローラ（リモートコントロール装置）19が付属されている。そして、このリモートコントローラ19からの指示信号は赤外線光によって送信され、室内ユニット8の赤外線受光部20に受光されるようになっている。さらに、この赤外線受光部20からの出力信号は制御回路14に入力されるようになっている。

【0041】また、図4は本実施の形態のリモートコントローラ19を示すものである。このリモートコントローラ19の本体には上面の略下半部に上下方向にスライド可能なカバー31が設けられている。さらに、リモートコントローラ19の本体上面には略上半部にカバー31の外に露出状態で保持される第1の操作面32、この第1の操作面32の下方にカバー31によって開閉される第2の操作面33がそれぞれ設けられている。

【0042】また、第1の操作面32には2つの液晶表示部34a, 34bと、2つの温度設定釦35, 36と、運転時間選択釦37と、冷房・暖房などの空気調和運転の運転/停止を指示する空調運転操作釦38と、電気集塵機11の運転/停止を指示する空清運転操作釦（塵埃用操作釦）39とがそれぞれ設けられている。ここで、空調運転操作釦38と空清運転操作釦39とは並べて配置されている。なお、これらの空調運転操作釦38による空気調和運転と、空清運転操作釦39による空気清浄運転とは互いに独立していて、他方の運転状態に影響されずに、ON/OFFすることが可能になっている。さらに、空調運転と空清運転の両方がONの時、空調運転操作釦38のボタンを押すだけで、空調運転と空清運転の両方がOFFするように設定されている。

【0043】また、リモートコントローラ19の第1の操作面32には空調および空清の両運転操作釦38, 39間に運転/停止に関連する表示を行う表示領域40が配設されている。この表示領域40には運転のON/OFFを意味する例えば、「運転/停止」の文字が黒字で印刷されている。

【0044】また、2つの液晶表示部34a, 34bには第1の操作面32および第2の操作面33上の各操作釦の操作に対応した各種運転条件を文字、イラスト、マークなどで適宜選択的に表示するようになっている。

【0045】また、第2の操作面33には空調および空清の両運転操作釦38, 39以外の各種運転状態を設定するための設定操作釦、例えばパワフル釦（強力清浄運転用操作釦）41、健康気流釦42、風向切換釦43、風量切換釦44、運転切換釦45、スイング釦46、タイマー入り釦47、タイマー切釦48、タイマー設定釦

49、予約釦50、取消し釦51などが設けられている。

【0046】ここで、パワフル釦41は電気集塵機11の能力を略最大能力に増大するための操作釦である。そして、空気調和機の本体運転中にパワフル釦41が操作された場合には、制御回路14から室内ファン9の回転数および電気集塵機11の動作電圧をそれぞれ増大させて電気集塵機11を略最大能力に増大させる制御信号が出力されるようになっている。

【0047】また、風向切換釦43は吹出ルーバーの方向（吹出風の方向）、風量切換釦44は吹出風量をそれぞれ設定するもの、運転切換釦45は冷房、暖房、自動、ドライ、送風等の各運転モードを設定するものである。さらに、スイング釦46は吹出ルーバーのスイング動作のオン、オフを切換えるためのものである。また、タイマー入り釦47はタイマーによる運転開始時刻を設定するためのもの、タイマー切釦48はタイマーによる運転停止時刻を設定するためのもの、タイマー設定釦49はタイマーによる運転時間を設定するためのものである。

【0048】なお、リモートコントローラ19の本体内には動作電源としての図示しない電池の収納室が形成されている。そして、この収納室内に電池が着脱可能に収納されている。

【0049】次に、上記構成の本実施の形態の作用について説明する。本実施の形態の空気調和機では電気集塵機11の使用時の空気調和機の動作はリモートコントローラ19の操作によって図5のフローチャートにしたがって次のように制御される。まず、電気集塵機11の運転指令の有無が判断される（ステップS1）。ここで、電気集塵機11の運転指令有りとは判断された場合には次のステップS2に進む。このステップS2では室内ファン9は通常回転数で駆動される。さらに、電気集塵機11は通常の動作電圧で保持されるとともに、上下ルーバ21の2枚のルーバ構成体21a, 21bは図6に示すように熱交換空気の吹出し口からの吹出し風の吹出し方向を略水平方向に向けた吹出し角度に回動される。なお、ステップS1で電気集塵機11の運転指令無と判断された場合には現在の運転状態で、待機される。

【0050】さらに、次のステップS3ではリモートコントローラ19のパワフル釦41がオン状態か否かが判断される。ここで、パワフル釦41がオン状態と判断された場合には次のステップS4に進む。このステップS4では予め所定の設定時間に設定されたタイマー1がスタートされる。続いて、次のステップS5では室内ファン9は通常回転数よりも増大された状態、または最大回転数で駆動される。さらに、ステップS6で電気集塵機11は通常の動作電圧よりも増大されるとともに、ステップS7で上下ルーバ21の2枚のルーバ構成体21a, 21bの向きは垂直方向（略鉛直方向）、または図

2に示すように斜め下向き方向に向けた吹出し角度に回転される。

【0051】また、次のステップS8では上下ルーバ21の向きの変更操作の有無が判断される。ここで、上下ルーバ21の向きの変更操作が有りだと判断された場合には次のステップS9に進む。このステップS9では上下ルーバ21の2枚のルーバ構成体21a, 21bの角度変更が垂直方向と、斜め下向き方向との間の範囲内で行われたのち、次のステップS10でタイマー1がタイムアップか否かが判断される。なお、ステップS8で上下ルーバ21の向きの変更操作が無しと判断された場合にはステップS10に進む。

【0052】また、ステップS10でタイマー1がタイムアップしていない状態と判断された場合には次のステップS11に進み、タイマー1がタイムアップした状態と判断された場合にはステップS2に戻される。

【0053】また、ステップS3で、リモートコントローラ19のパワフル釦41がオフ状態と判断された場合には次のステップS12に進む。このステップS12ではリモートコントローラ19の空清運転操作釦39がオン状態か否かが判断される。ここで、空清運転操作釦39がオフ状態と判断された場合にはステップS11に進み、空清運転操作釦39がオン状態と判断された場合には次のステップS13に進む。

【0054】このステップS13では上下ルーバ21の駆動用の第1のルーバモータ24が駆動され、上下ルーバ21のスイングが開始される。続いて、次のステップS14でガスセンサ27の出力値が読み込まれる。

【0055】さらに、次のステップS15ではガスセンサ27の出力値が予め設定された所定の設定値以下か否かが判断される。ここで、ガスセンサ27の出力値が予め設定された所定の設定値よりも高いと判断された場合にはステップS13に戻され、ガスセンサ27の出力値が予め設定された所定の設定値以下と判断された場合には次のステップS16に進む。このステップS16では上下ルーバ21のスイングが停止され、その後、ステップS11に進む。

【0056】また、ステップS11では電気集塵機11の運転停止指令の有無が判断される。ここで、電気集塵機11の運転停止指令無しと判断された場合にはステップS2に戻され、電気集塵機11の運転停止指令有りだと判断された場合には電気集塵機11の運転が停止される。

【0057】そこで、上記構成のものにあつては次の効果を奏する。すなわち、本実施の形態の空気調和機ではリモートコントローラ19にパワフル釦41を設け、空気調和機の本体運転中にリモートコントローラ19のパワフル釦41が操作された場合に、制御回路14から出力される制御信号によって室内ファン9の回転数および電気集塵機11の動作電圧をそれぞれ増大させて電気集

塵機11を略最大能力に増大させるようにしたので、電気集塵機11による電気集塵機能を最大限発揮できる。そのため、リモートコントローラ19のパワフル釦41を押し下げる1つのボタン操作のみで簡単かつ正確に電気集塵機11による最大集塵能力の達成を行うことができる。

【0058】また、本実施の形態の空気調和機では運転中にリモートコントローラ19のパワフル釦41が操作された場合に、上下ルーバ21を略鉛直方向に向けた吹出し角度、或いは図2に示すように斜め下方向に向けた吹出し角度に変更する吹出し風制御手段を設けたので、室内ユニット8からの吹出し風の吹出し角度を簡単に変えることができる。そのため、空気清浄機10による室内空気の清浄化作用を効果的に発揮させることができ、空気清浄機10による室内空気の清浄化効果を高めることができる。

【0059】さらに、本実施の形態の空気調和機では通常運転における電気集塵機11の制御時に、上下ルーバ21を略水平方向に向けた吹出し角度に回転する通常運転時の第1の制御モードと、リモートコントローラ19のパワフル釦41が操作された場合に、上下ルーバ21を略鉛直方向に向けた吹出し角度、或いは斜め下方向に向けた吹出し角度に変更する強力清浄運転時の第2の制御モードとを切換える切換え手段を吹出し風制御手段に設けたので、リモートコントローラ19のパワフル釦41が操作された場合に、上下ルーバ21の角度を例えば図6に示す水平方向に向けた吹出し角度位置から図2に示すように斜め下方向に向けた吹出し角度位置に変化させることができる。そのため、リモートコントローラ19のパワフル釦41を押し下げ操作するだけの簡単な作業によって吹出し風の吹出し角度を最適位置に移動させることができるので、操作上下ルーバ21の細かな角度調整を行うことなく、使用者に適した吹出し角度をいつでもすぐに達成することができる。

【0060】また、本実施の形態の空気調和機ではリモートコントローラ19のパワフル釦41が操作された場合に、上下ルーバ21を連続的にスイングさせる機能を備えているので、空気清浄機10による室内空気の清浄化効果を一層高めることができる。

【0061】なお、本実施の形態の空気調和機ではリモートコントローラ19のパワフル釦41が操作された場合に、上下ルーバ21による吹出し風の吹出し角度を上下方向に変更する構成を示したが、リモートコントローラ19のパワフル釦41が操作された場合に、左右ルーバを連続的にスイングさせる吹出し風左右方向制御手段を設ける構成にしても良い。

【0062】さらに、本実施の形態の空気調和機ではリモートコントローラ19のパワフル釦41を押す事により、空気調和機の風量を例えば次の表1に示す運転条件に従い増加させる構成にしても良い。

【0063】

【表1】

汚れのゾーン	自動時ファン モータ速度	強力運転時
4	W9	+3ステップ
3	W6	+3ステップ
2	W4	+2ステップ
1	W1	+1ステップ

【0064】なお、上記表1の汚れのゾーンは数字が大きいほど室内の汚れの度合いが大きく、自動時ファンモータ速度はWの横の数字が大きいほど室内ファン9のファンモータの回転速度が高くなる。

【0065】そして、上記表1に示されているように室内の汚れの度合いの大きさに応じて室内ファン9のファンモータの回転速度を調整し、汚れの度合いが大きい場合には上下ルーバ21による吹出し風の吹出し風量をさ

らに増加させることにより、空気清浄機10による室内空気の清浄化効果をさらに高めることができる。

【0066】さらに、リモートコントローラ19のパワフル釦41が操作された場合に、空気調和機の吹出し風の風量を例えば次の表2に示す運転条件に従い増加させる構成にしても良い。

【0067】

【表2】

設定風量	ファンモータ 速度	強力運転時
H (強)	WC	+3ステップ
M (弱)	W9	+2ステップ
L (微)	W6	+3ステップ

【0068】ここでは空気調和機運転中の吹出し風の風量は手動操作によりH、M、Lの3段階のいずれかの設定風量で固定されている。そして、各段階の設定風量での運転中にリモートコントローラ19のパワフル釦41が操作された場合に、設定風量に応じて空気調和機の吹出し風の風量をさらに増加させることにより、空気清浄機10による室内空気の清浄化効果をさらに高めることができる。

【0069】また、図7(A)～(C)は本発明の第2の実施の形態を示すものである。本実施の形態はリモートコントローラ19の空清運転操作釦39が操作された場合に、空気調和機の吹出し風の風量一定で、上下ルーバ21の2枚のルーバ構成体21a、21bを複数方向へ向きを変えるほこり取り運転(第1の運転モード)を予め設定された所定の設定時間行う構成にしたものである。

【0070】このほこり取り運転時には上下ルーバ21の2枚のルーバ構成体21a、21bは図7(A)に示すように気流床側吹出し角度に回転させた状態と、図7(B)に示すように気流2方向吹出し角度に回転させた状態と、図7(C)に示すように天井吹出し角度に回転させた状態とに順次独立に回転駆動されるようになっている。

【0071】さらに、このほこり取り運転が設定時間行われた後、空気調和機は通常の自動コントロール状態(第2の運転モード)に戻る。そのため、上下ルーバ21の2枚のルーバ構成体21a、21bの回転角度が所

定の設定角度で固定され、吹出し風の風量は自動コントロールされる。

【0072】そこで、上記構成のものにあっては次の効果を奏する。すなわち、本実施の形態ではリモートコントローラ19の空清運転操作釦39が操作された場合に、上下ルーバ21の2枚のルーバ構成体21a、21bを複数方向へ向きを変える、すなわち図7(A)、図7(B)、図7(C)の順に順次切換えるほこり取り運転を予め設定された所定の設定時間行う構成にしたので、床のほこりを舞い上がらせ、効果的にほこりを取ることができる。そのため、従来のように空気清浄運転中、ルーバ角度が、一定方向に固定されている場合に比べて優れたほこり取り運転ができる効果がある。

【0073】さらに、ほこり取り運転後、上下ルーバ21の2枚のルーバ構成体21a、21bの回転角度が所定の設定角度で固定し、吹出し風の風量を自動コントロールすることにより、快適運転ができる。

【0074】また、図8は第1の実施の形態の空気調和機における電気集塵機11の制御の変形例を示すフローチャートである。本変形例では第1の実施の形態の空気調和機の運転中に、空清運転操作釦39がオン操作された場合の動作、すなわち図5のフローチャートにおけるステップS12以降の空気調和機の動作を次の通り変更したものである。

【0075】すなわち、本変形例ではステップS12でリモートコントローラ19の空清運転操作釦39がオン状態か否かが判断された際に、空清運転操作釦39がオ

フ状態と判断された場合には第1の実施の形態と同様にステップS11に進む。ここで、空清運転操作釦39がオン状態と判断された場合には次のステップS21に進む。

【0076】このステップS21では予め所定の設定時間に設定されたタイマー2がスタートされる。続いて、次のステップS22では上下ルーバ21の駆動用の第1のルーバモータ24が駆動され、上下ルーバ21のスイングが開始される。続いて、次のステップS23でタイマー2がタイムアップか否かが判断される。このステップS23でタイマー2がタイムアップしていない状態と判断された場合にはステップS22に戻される。

【0077】また、ステップS23でタイマー2がタイムアップした状態と判断された場合には次のステップS24に進み、上下ルーバ21のスイングが停止される。その後、次のステップS25で予め所定の設定時間に設定されたタイマー3がスタートされる。

【0078】続いて、次のステップS26ではタイマー3がタイムアップか否かが判断される。このステップS26でタイマー3がタイムアップしていない状態と判断された場合にはステップS26に戻される。

【0079】また、ステップS26でタイマー3がタイムアップした状態と判断された場合には次のステップS27に進み、リモートコントローラ19の空清運転操作釦39がオフ状態か否かが判断される。ここで、空清運転操作釦39がオン状態と判断された場合にはステップS21に戻され、空清運転操作釦39がオフ状態と判断された場合にはステップS11に進む。

【0080】そこで、上記構成のものにあっては次の効果を奏する。すなわち、本変形例ではタイマー2の設定時間およびタイマー3の設定時間をそれぞれ任意に設定することにより、空清運転操作釦39のオン操作時には上下ルーバ21のスイング動作をタイマー2による設定時間だけ行わせた後、タイマー3によって設定される設定時間だけスイング動作を停止させ、以後同様のインターバルで上下ルーバ21のスイング動作を繰り返し行わせることができる。そのため、空清運転操作釦39のオン操作時のほこり取り運転の効果を高めることができる。

【0081】また、図9(A)～(C)は本発明の他の実施の形態を示すものである。ここでは、上下ルーバ21の2枚のルーバ構成体21a, 21bを複数方向へ向きを変えるほこり取り運転の運転パターンを次のように変更したものである。なお、図9(A)～(C)中で、(1)は上下ルーバ21の2枚のルーバ構成体21a, 21bを図7(A)に示すように気流床側吹出し角度に回動させた状態、(2)は図7(B)に示すように気流2方向吹出し角度に回動させた状態、(3)は図7(C)に示すように天井吹出し角度に回動させた状態をそれぞれ示す。

【0082】すなわち、図9(A)はほこり取り運転(第1の運転モード)後、第2の運転モードでは次第に吹出し風の風量をおとし、快適運転する運転パターンを示すものである。ここでは、第1の運転モードで吹出し風の風量一定で所定時間、上下ルーバ21の2枚のルーバ構成体21a, 21bを複数方向へ向きを変える運転、すなわち(1), (2), (3)の順に順次切替える運転をした後、第2の運転モードでは次第に吹出し風の風量をおとすようにしたものである。

【0083】そこで、上記構成のものにあってはほこり取り運転時には床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。さらに、本実施の形態では第2の運転モードではほこり取り運転の吹出し風の風量を次第におとすことにより、快適なほこり取り運転を行うことができる。

【0084】また、図9(B)はほこり取り運転(第1の運転モード)後、第2の運転モードでは上下ルーバ21の2枚のルーバ構成体21a, 21bのルーバ角度および吹出し風の風量が任意に選べる運転パターンを示すものである。ここでは、第1の運転モードで吹出し風の風量一定で所定時間、上下ルーバ21の2枚のルーバ構成体21a, 21bを(1), (2), (3)の順に順次切替えて複数方向へ向きを変える運転をした後、第2の運転モードではルーバ角度は第1の運転モード中のルーバ向きのどれかとする。

【0085】そこで、上記構成のものにあってはほこり取り運転時には床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。さらに、本実施の形態ではほこり取り運転後、第2の運転モードでは必要なルーバ角度を選べ、快適な運転ができる。

【0086】さらに、図9(C)はほこり取り運転(第1の運転モード)後、第2の運転モードでは上下ルーバ21の2枚のルーバ構成体21a, 21bのルーバ角度を変えるインターバルを長くしてほこり取り運転の効果を増した運転パターンを示すものである。ここでは、第1の運転モードで所定時間、上下ルーバ21の2枚のルーバ構成体21a, 21bを30秒のインターバルで(1), (2), (3)の順に順次切替えて複数方向へ向きを変える運転をした後、第2の運転モードではルーバ角度を変えるインターバルを60秒に長くする。

【0087】そこで、上記構成のものにあってはほこり取り運転時には床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。さらに、本実施の形態では第2の運転モードではほこり取り運転中のルーバ角度変化時間を選べ、部屋にあったほこり取り運転ができる。

【0088】また、図10(A), (B)は本発明のさらに別の実施の形態の空気調和機の運転パターンを示す

ものである。ここでは、上下ルーバ21の2枚のルーバ構成体21a, 21bを複数方向へ向きを変えるほこり取り運転の運転パターンを次のように変更したものである。

【0089】すなわち、図10(A)は空気清浄運転(ほこり取り運転)中に、所定時間ルーバを複数方向へ向きを変える運転(第1の運転モード)を行った後、ガスセンサ27の出力により通常の自動運転(第2の運転モード)に切換える運転パターンを示すものである。ここでは、第1の運転モードで吹出し風の風量一定で所定時間、上下ルーバ21の2枚のルーバ構成体21a, 21bを(1), (2), (3)の順に順次切換えて複数方向へ向きを変える運転をした後、第2の運転モードではガスセンサ27の出力に従うようになっている。

【0090】そこで、上記構成のものにあってはほこり取り運転時には床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。さらに、本実施の形態では第2の運転モードで吹出し風の風量をガスセンサ27により自動コントロールし、快適運転ができる。

【0091】さらに、図10(B)はほこり取り運転をガスセンサ27によりコントロールした(第1の運転モード)後、ガスセンサ27の出力により通常の自動運転(第2の運転モード)に切換える運転パターンを示すものである。ここでは、第1の運転モード中の風量はガスセンサ27に従うようになっている。

【0092】そこで、上記構成のものにあってはほこり取り運転時には床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。さらに、本実施の形態では第1の運転モードで吹出し風の風量をガスセンサ27により自動コントロールし、快適運転ができる。

【0093】また、図11(A)～(C)は本発明のさらに別の実施の形態を示すものである。第1の実施の形態では上下ルーバ21に平板状の2枚のルーバ構成体21a, 21bを設けた構成を示したが、本実施の形態では平板状の1枚のルーバ構成体61によって上下ルーバ21を構成したものである。ここで、図11(A)は上下ルーバ21のルーバ構成体61を気流床側吹出し角度に回転させた状態、図11(B)は上下ルーバ21のルーバ構成体61を気流斜め下吹出し角度に回転させた状態、図11(C)は上下ルーバ21のルーバ構成体61を天井吹出し角度に回転させた状態をそれぞれ示す。そして、ほこり取り運転時には吹出し風の風量一定で所定時間、上下ルーバ21の1枚のルーバ構成体61を図11(A), 図11(B), 図11(C)の順に順次切換えて複数方向へ向きを変えて運転するようになっている。

【0094】そこで、上記構成のものにあってはほこり取り運転時には上下ルーバ21を構成する平板状の1枚

のルーバ構成体61を複数方向へ向きを変えて運転するようにしたので、ほこり取り運転時には床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。

【0095】また、図12(A), (B)は本発明のさらに別の実施の形態の空気調和機を示すものである。本実施の形態では図12(A)に示すように室内ユニット8の本体にほこり取りランプ71が設けられている。このほこり取りランプ71はほこり取り運転中は点灯状態で保持され、ほこり取り運転以外の状態では消灯されるようになっている。

【0096】さらに、本実施の形態の空気調和機では図12(B)に示すようにリモートコントローラ72にはほこり取り釦73が設けられている。このほこり取り釦73の押し下げ操作時には図9(A)～(C)および図10(A), (B)の第1の運転モードであるほこり取り運転が行われるようになっている。

【0097】そこで、上記構成のものにあってはリモートコントローラ72にはほこり取り釦73を設けたので、ほこり取り釦73を押し下げ操作することにより、第1の運転モードのほこり取り運転を簡単に選べる。そのため、ほこり取り運転が容易にできる。さらに、ほこり取り運転中はほこり取りランプ71が点灯状態で保持されるので、このほこり取りランプ71の点灯状態を目視することにより、ほこり取り運転が容易に確認できる。

【0098】さらに、本発明は上記実施の形態に限定されるものではない。例えば、上下ルーバ21の2枚のルーバ構成体21a, 21bのうちの一方が固定され、他方のみが回転可能な構成にしても良い。また、3枚以上のルーバ構成体を設けても良く、さらに、その他、本発明の要旨を逸脱しない範囲で種々変形実施できることは勿論である。

【0099】

【発明の効果】請求項1に係る発明によれば電気集塵機的能力を略最大能力に増大するための強力清浄運転用操作釦をリモートコントロール装置に設け、空気調和機の本体運転中に強力清浄運転用操作釦が操作された場合に、送風機の回転数および電気集塵機の動作電圧をそれぞれ増大させて電気集塵機を略最大能力に増大させる制御手段を設けたので、リモートコントロール装置の1つのボタン操作で簡単かつ正確に電気集塵機による最大集塵能力の達成を行うことができる。

【0100】請求項6に係る発明によれば空気調和機の本体の運転中に塵埃用操作釦が操作された場合に、吹出し風制御手段によって上下ルーバを連続的にスイングさせるようにしたので、ほこり取り運転時に床のほこりを舞い上がらせ、効果的にほこりを取り除くことができ、優れたほこり取り運転ができる効果がある。

【図面の簡単な説明】

【図1】本発明の第1の実施の形態における空気調和機

の室内ユニットの外観を示す斜視図。

【図2】同実施の形態の室内ユニットの縦断面図。

【図3】同実施の形態の空気調和機の冷凍サイクルを示す概略構成図。

【図4】同実施の形態の空気調和機におけるリモートコントローラのカバーを開いた状態を示す正面図。

【図5】同実施の形態の空気調和機における電気集塵機の制御用のフローチャート。

【図6】同実施の形態の空気調和機の室内ユニットにおける上下ルーバを水平吹出し角度に回転させた状態を示す要部の縦断面図。

【図7】本発明の第2の実施の形態を示すもので、

(A)は室内ユニットの上下ルーバを気流床側吹出し角度に回転させた状態を示す要部の縦断面図、(B)は室内ユニットの上下ルーバを気流2方向吹出し角度に回転させた状態を示す要部の縦断面図、(C)は室内ユニットの上下ルーバを天井吹出し角度に回転させた状態を示す要部の縦断面図。

【図8】第1の実施の形態の空気調和機における電気集塵機の変形例を示すフローチャート。

【図9】本発明の他の実施の形態の空気調和機の運転パターンを示すもので、(A)はほこり取り運転後、次第に風量をおとし快適運転する運転パターンを示す特性図、(B)はほこり取り運転後、ルーバ角度が任意に選べる運転パターンを示す特性図、(C)はほこり取り運転後、ルーバ角度を変えるインターバルを長くしてほこり取り運転の効果を増した運転パターンを示す特性図。

【図10】本発明のさらに別の実施の形態の空気調和機

の運転パターンを示すもので、(A)は空気清浄運転中に、所定時間ルーバを複数方向へ向きを変える運転を行った後センサの出力により自動空気清浄運転に切換える運転パターンを示す特性図、(B)はほこり取り運転をセンサによりコントロールした後センサの出力により自動空気清浄運転に切換える運転パターンを示す特性図。

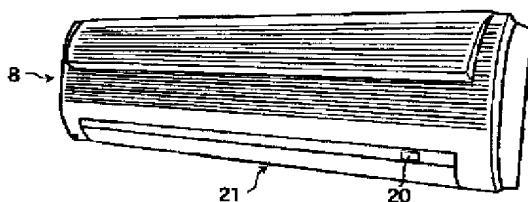
【図11】本発明のさらに別の実施の形態の空気調和機の上下ルーバの動作状態を示すもので、(A)は室内ユニットの上下ルーバを気流床側吹出し角度に回転させた状態を示す要部の縦断面図、(B)は室内ユニットの上下ルーバを気流2方向吹出し角度に回転させた状態を示す要部の縦断面図、(C)は室内ユニットの上下ルーバを天井吹出し角度に回転させた状態を示す要部の縦断面図。

【図12】本発明のさらに別の実施の形態の空気調和機を示すもので、(A)は空気調和機の室内ユニットの外観を示す斜視図、(B)は空気調和機におけるリモートコントローラの要部構成を示す正面図。

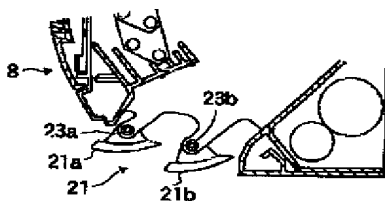
【符号の説明】

- 3 室内側熱交換器
- 8 室内ユニット(室内機)
- 9 室内ファン(送風機)
- 11 電気集塵機
- 14 制御回路(制御手段)
- 19 リモートコントローラ(リモートコントロール装置)
- 39 空清運転操作釦(塵埃用操作釦)
- 41 パワフル釦(強力清浄運転用操作釦)

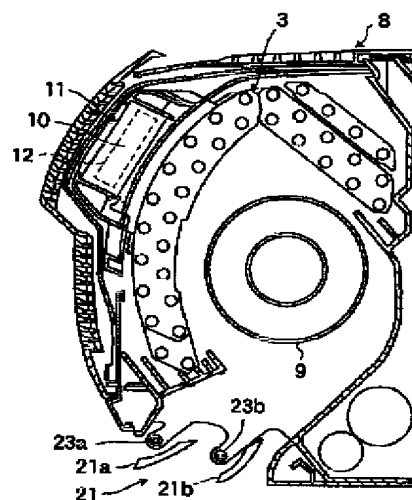
【図1】



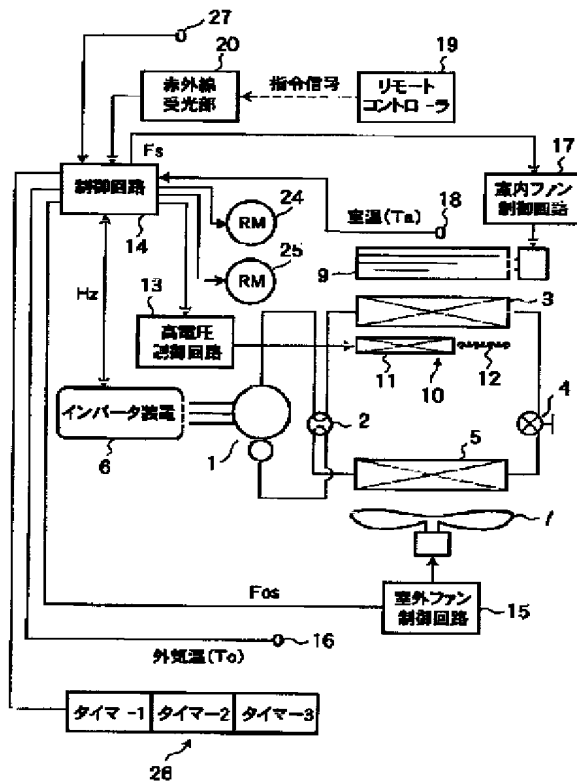
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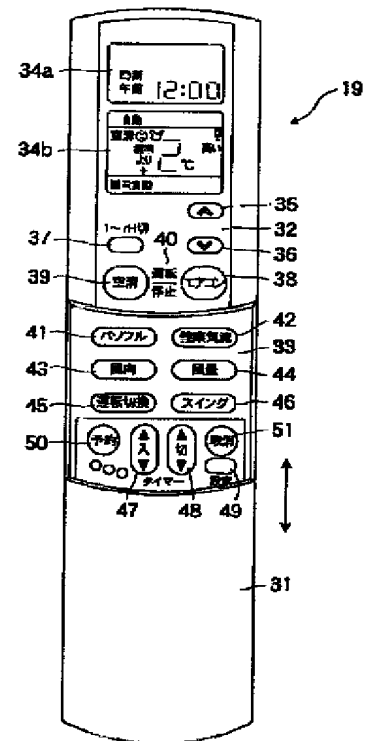
【図2】



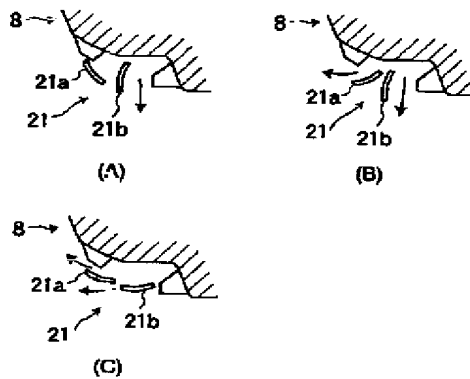
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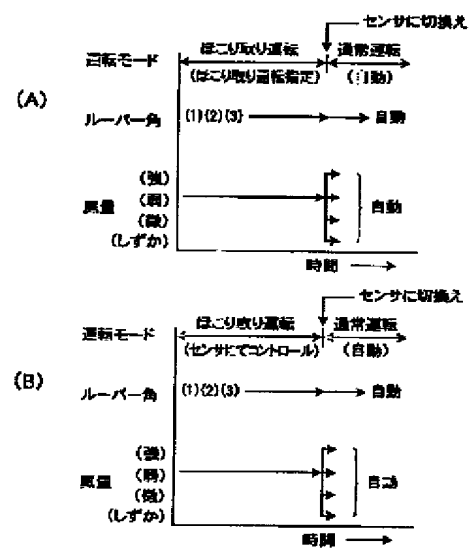
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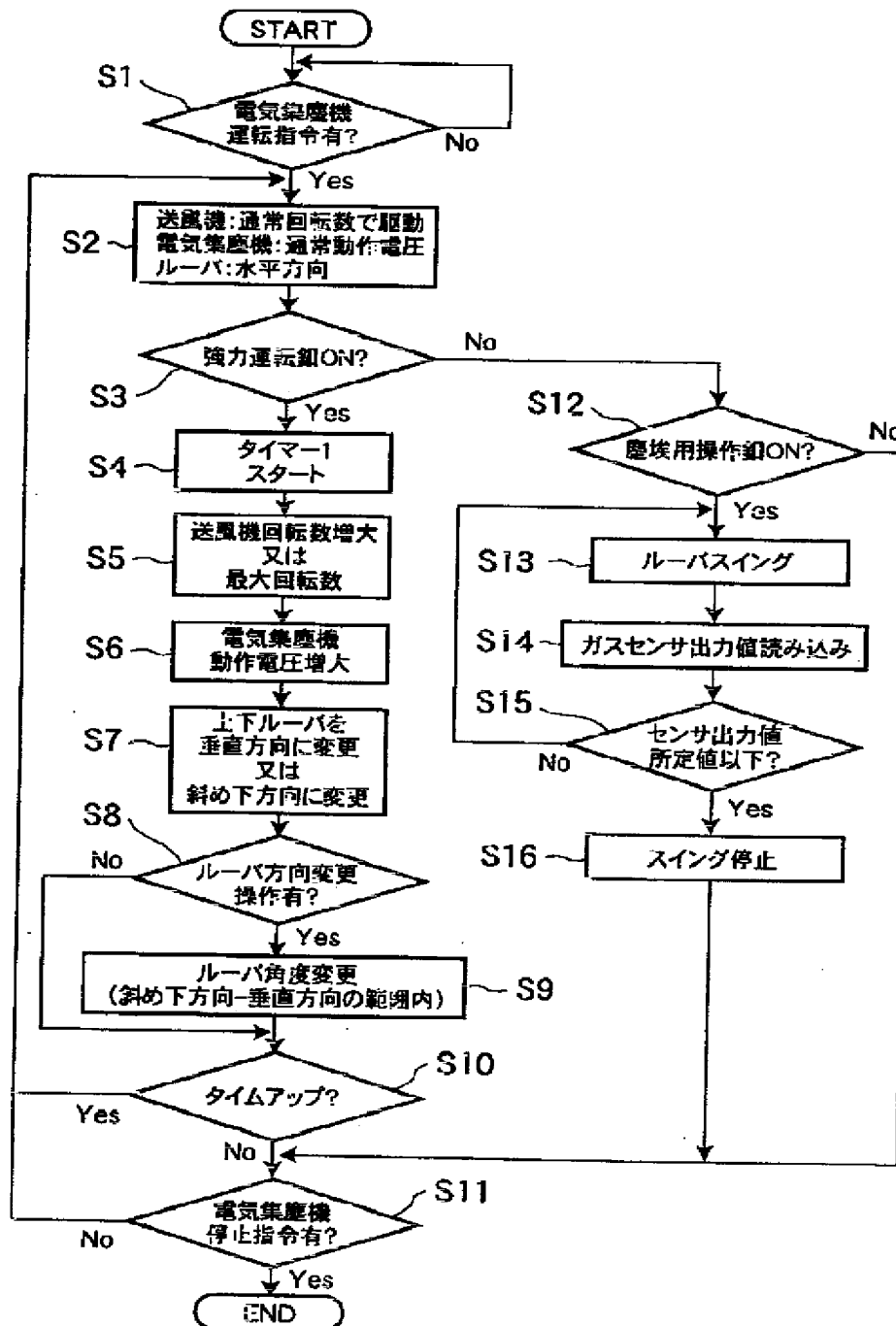
【図7】



【図10】

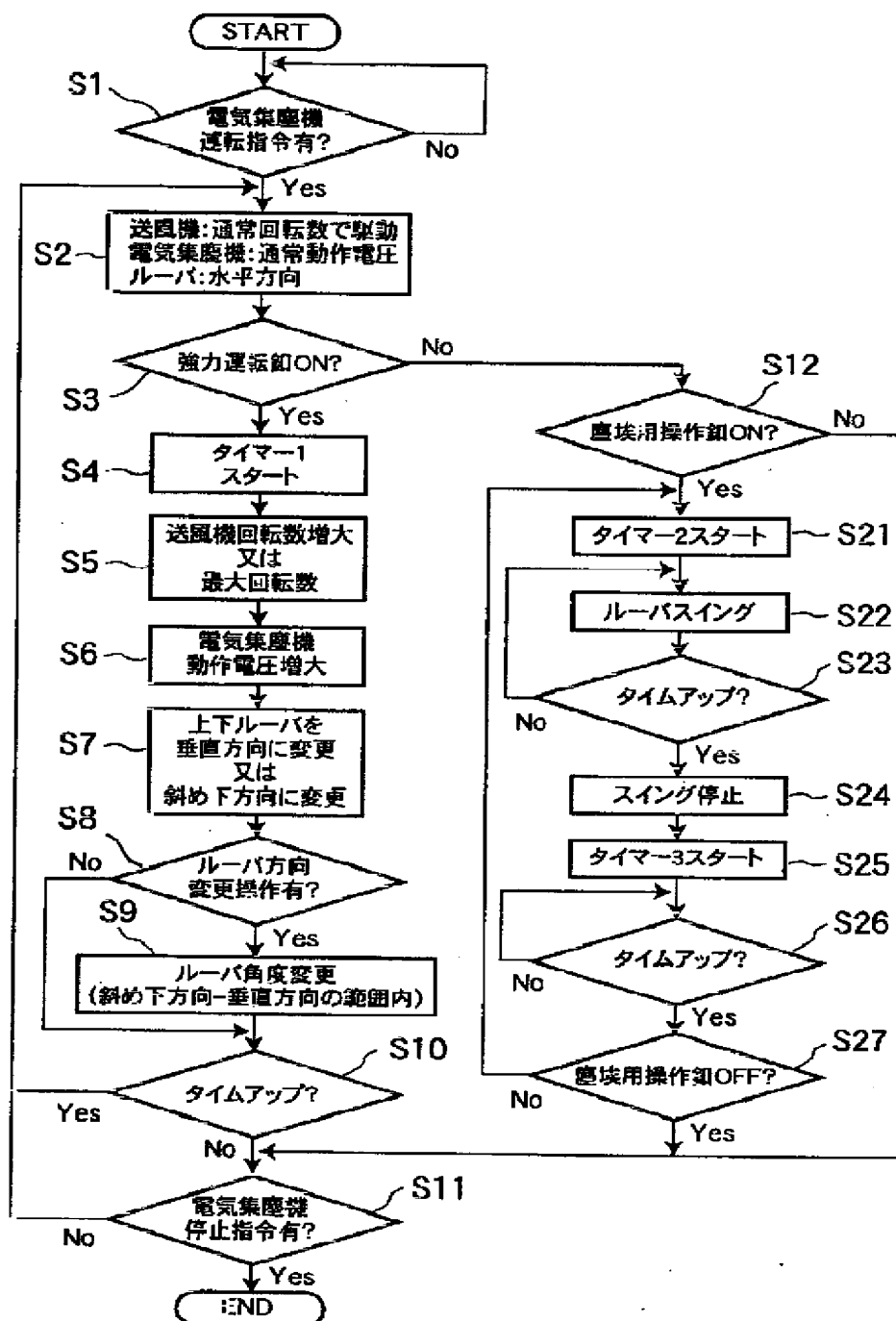


【図5】

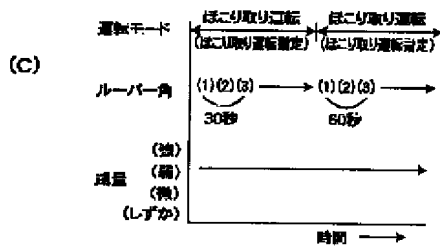
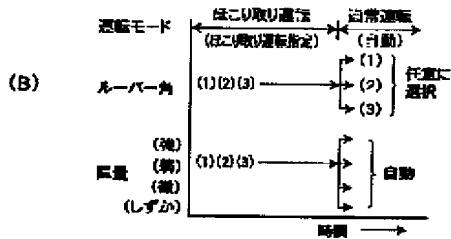
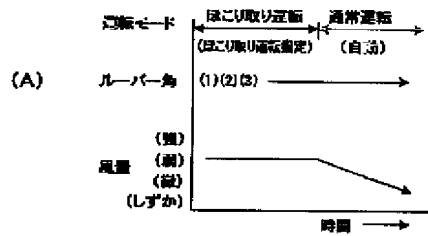




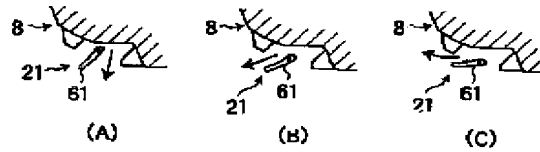
【図8】



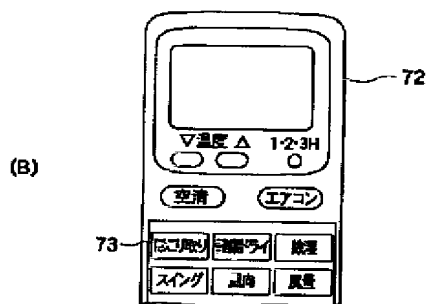
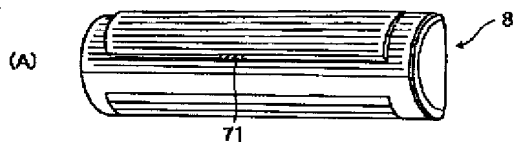
【図9】



【図11】



【図12】



フロントページの続き

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